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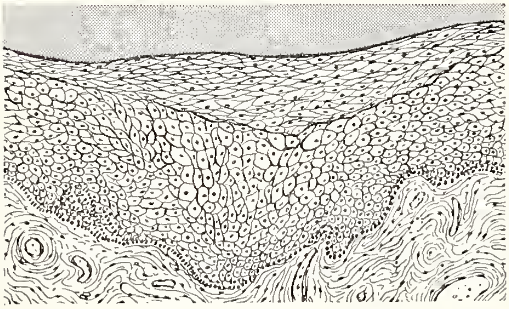
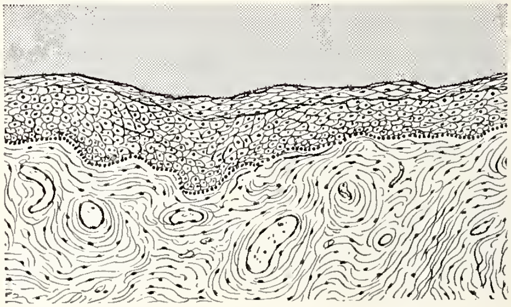
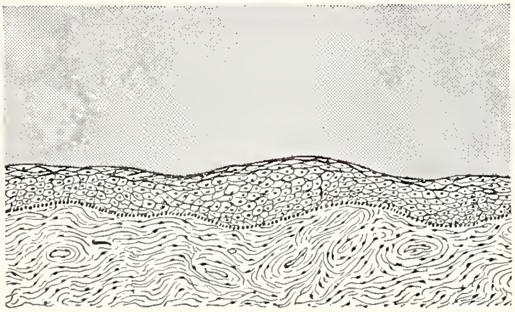


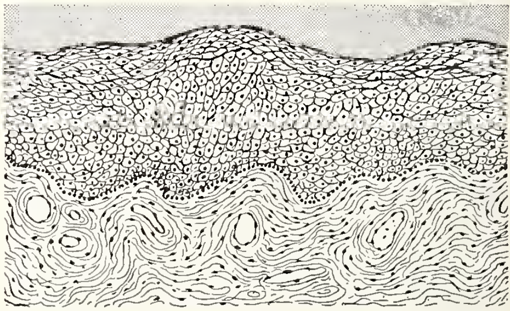
Adult vaginal epithelium maintained by estrogen activity.



During menopause, mucosa reverts to the infantile type.



Postmenopausal mucosa—thinning and atrophy of layers.



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*Sturnick, M. I., and Gargill, S. L.: New England J. Med. *247*:829 (Nov. 27) 1952.

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SEARLE

Intestinal Obstruction*

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INTRODUCTION

Intestinal obstruction (ileus) continues to be a serious and common problem for the abdominal surgeon.

We have recently analyzed 798 cases of acute mechanical intestinal obstruction from all services at Charity Hospital and Touro Infirmary in New Orleans, Louisiana. These studies reveal a mortality rate of 4 per cent for obstruction of the small intestine and 16 per cent for obstructions of the colon.

This is a marked improvement over the results published in 1950[1]. At that time the mortality rate was 16 per cent in the small intestine and 30 per cent in obstructions of the colon.

CLASSIFICATION

Intestinal obstruction has been classified in several ways. Treves[2] differentiated the neurogenic from the mechanical type of obstruction. The latter type was further subdivided into high and low obstructions.

Wangensteen[3] has rightly emphasized the differences between acute and chronic obstructions, and between complete and incomplete obstructions.

The following classification, we believe, is superior to previous classifications:

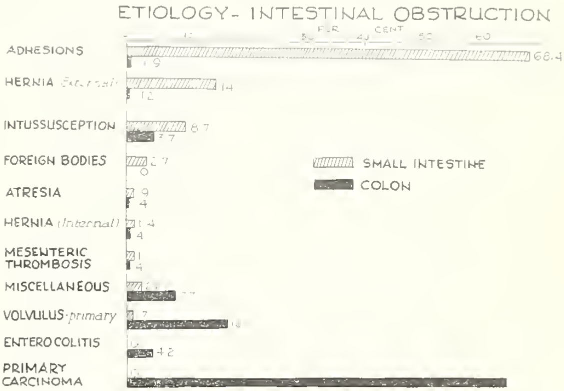
- I. Mechanical obstruction.
    - a. Small intestine.
    - b. Large intestine.
- II. Neurogenic obstruction.
    - a. Adynamic.
    - b. Dynamic
- III. Primary vascular obstruction.
    - a. Mesenteric thrombosis.
    - b. Mesenteric embolus.

For a clear understanding of mechanical obstructions, it is important to differentiate small intestinal obstructions from colon obstructions. There are important differences in etiology, incidence, age, physiology, pathology, clinical picture, treatment and prognosis between the two types.

Further discussion herein will deal primarily with the various phases of acute mechanical intestinal obstruction.

ETIOLOGY

Entirely different etiological factors usually produce small bowel obstruction as compared to the factors which produce obstruction of the colon (Figure 1).



Postoperative adhesions in this series caused 68 per cent of all small bowel obstruction. This has increased from 39 per cent since 1950[1].

The reasons for this increase in the number of adhesive obstructions is as follows: 1) external herniae are less often allowed to reach the stage of obstruction; 2) increased number and increased extent of abdominal operative procedures (particularly gynecological); 3) adhesion formation produced by powder and starch in the peritoneal cavity.

External hernia has decreased as a cause of small bowel intestinal obstruction from 35 per cent in 1950 to 14 per cent in the present series. There are three reasons for this: 1) the lay public is becoming increasingly conscious of the dangers of complicated herniae, as well as becoming aware of the lack of seriousness of elective herniorrhaphy: 2) many industries will not accept workers who have herniae, thereby forcing them to have elective herniorrhaphy; 3) surgeons are more willing to perform elective operation in cases previously not operated (small infants and poor risk adults) because of improved anesthesia and supportive measures.

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†From the Department of Surgery, Tulane University and the Surgical Services of Charity Hospital and Touro Infirmary, New Orleans.

ETIOLOGY

Obstructions of the colon are rarely produced by adhesions or external hernia. Primary carcinoma causes 64.1 per cent of the acute colon obstructions in the present series and 62 per cent in the 1950 series.

Primary carcinoma of the small intestine on the other hand is an extremely rare cause of acute obstruction of the small intestine.

Primary volvulus of the colon is the second most common cause of acute colic obstruction, and accounted for 16 per cent of obstruction of the colon. Primary volvulus can involve the small intestine, but is relatively uncommon. Secondary volvulus of the small intestine, precipitated by fixation due to adhesions, is not uncommon and is included in the adhesive obstructions.

Inflammatory conditions of the intestine, particularly diverticulitis, are an occasional cause of acute colic obstruction. This was found in 4.2 per cent of the cases in this series. Primary inflammatory conditions produced no acute obstructions of the small intestine.

Intussusception may cause either colic or small intestinal obstruction. In this category, there is a definite overlapping between colic and small intestinal obstructions. Intussusception caused 8.7 per cent of the small bowel obstructions and 3.7 per cent of the colic obstructions.

Mesenteric thrombosis is more common in the small intestine than it is in the colon. There was only one obstruction of the colon in this series due to mesocolic thrombosis.

Atresia of the intestinal tract is more common in the small intestine than in the colon. When it does occur in the colon, it is usually coincidental with small bowel atresia and the clinical manifestations are those of small bowel obstruction.

As might be expected, foreign bodies (such as gall stones, bezoars, etc.), practically always lodge in the distal small intestine and rarely obstruct the colon. This obstruction usually occurs in the terminal ileum, which is the narrowest part of the small intestine. In this series 2.7 per cent of small intestinal obstructions were due to foreign bodies and there were no such colic obstructions.

It is evident from this analysis of etiology, that there are many differences in the causative factors involved in these two types of mechanical ileus.

INCIDENCE

Obstruction of the small intestine is 5 to 6 times as common as obstruction of the colon.

The average surgeon, therefore, does not see many colon obstructions. This is one of several reasons for the higher mortality in colon obstructions.

AGE

Carcinoma of the colon, diverticulitis, and primary volvulus usually occur in older patients. Therefore, acute colon obstructions are more often found in the older age group.

On the other hand, small intestinal obstructions may occur in any age group. The majority of obstructions in infants, children, and young adults are of the small intestine. The average age of the patients with small intestinal obstruction is much less than the average age of those with colon obstructions.

PATHOLOGY AND PHYSIOLOGY

In mechanical obstruction, the intestine above the site of obstruction becomes markedly distended with fluid and gas.

The gas is derived from three sources: 1) swallowing; 2) bacterial activity; 3) increased gaseous exchange between the lumen of the bowel and the blood stream. A large percentage of the gas is swallowed, emphasizing the importance of gastrointestinal intubation in mechanical ileus.

The fluid in the obstructed bowel is derived from three sources: 1) normal intestinal contents; 2) increased secretion of the mucous membrane ("weeping mucosa"); 3) fluid ingested orally.

The intestine below the site of obstruction is collapsed and empty.

Interference with the blood supply to the intestinal wall (strangulation) may occur in four different ways:

1. Increase in the intraluminal pressure will eventually cause occlusion of the intramural intestinal blood vessels. This is particularly true in closed loop colon obstructions resulting from a competent ileo-cecal valve;
2. Torsion may produce occlusion of the mesenteric vessels (volvulus);
3. Compression may produce occlusion of the mesenteric vessels (strangulated hernia);
4. Mesenteric thrombosis or embolus is the etiology of primary vascular ileus.

In acute obstruction of the small intestine the intestine above the site of the obstruction becomes progressively more distended with fluid and gas in direct proportion to the length of time from the onset of the obstruction. This distention is most marked immediately above the site of the obstruction and will eventually involve the entire proximal intestinal tract, unless the obstruction is released.

Large amounts of fluid, which closely resemble blood plasma, escape directly into the lumen of the intestinal tract. As a result of this fluid loss, severe chemical changes take place in the fluids and tissues of the body. The end results are dehydration, hypochloremia, alkalosis or acidosis, hypoproteinemia, sodium and potassium deficiencies, hypovitaminosis, hemoconcentration, and azotemia.

Acute colic obstruction on the other hand rarely produces the picture of marked chemical imbalance which is so characteristic of small intestinal obstruction. In many cases of colic obstruction, as a result of competency of the ileocecal valve (carcinoma or diverticulitis) or volvulus, the obstruction is of the closed loop type. The distention is limited to this closed loop of colon, and there is little or no concurrent distention of the small intestine.

When this occurs there is great danger of colic perforation. In carcinomatous obstruction, this perforation usually occurs in the cecum, which is the thinnest and most distensible part of the large intestine.

The patient with untreated acute obstruction of the colon will usually, therefore, succumb to perforation and peritonitis. The patient with untreated acute small bowel obstruction will usually die as a result of severe chemical imbalance.

LOCATION OF THE OBSTRUCTION

Acute obstructions of the small intestine are more common in the middle and terminal ileum. There are several reasons for this.

The terminal ileum is the most movable part of the small intestine and has the smallest lumen. It is nearest to the site of the most common abdominal operations (appendectomy, gynecological procedures, and herniorrhaphy), and is thereby more likely to become involved in postoperative adhesions. The terminal ileum is the nearest to the location of the common external abdominal hernias (inguinal, femoral, and ventral), which might produce incarceration or strangulation. This terminal part of the small intestine also most often becomes intussuscepted into the cecum in the common type of intussusception.

Acute colic obstruction, on the other hand, shows a predilection to involve the left colon, particularly the sigmoid.

There are several reasons why acute malignant obstruction of the colon is most common in the sigmoid and left colon. The lumen of the left colon is smaller and the walls are thicker and less distensible. The fecal content is more solid than that of the right and transverse colon. The annular type of carcinoma also occurs most frequently in the left colon.

Volvulus is also more common in the sigmoid colon because of its redundancy and the proximity of the points of fixation. Diverticulitis is well known to occur most often in the sigmoid colon.

CLINICAL PICTURE

The clinical picture in the majority of cases of colon obstruction differs from that of small intestinal obstructions. The classical signs and symptoms of cramping abdominal pain, nausea and vomiting, inability to expel flatus, and distention are usually present but vary in the two types of obstructions.

The patient with colon obstruction will more often give a history of previous attacks of incomplete obstruction. The onset of symptoms is generally acute and violent in small bowel obstructions and more insidious in the colon obstructions.

The abdomen of the patient with colon obstruction is more markedly distended than in most small intestinal obstruction cases. Only far-advanced, low, small bowel obstructions are markedly distended. It must be remembered, however, that some cases of colic obstruction especially those due to carcinoma of the right colon, may manifest only slight clinical distention.

Nausea and vomiting are classical symptoms of acute mechanical intestinal obstruction. Both of these symptoms may be absent in colon obstruction—17.5 per cent in the 1950 series[1]. On the other hand, it is extremely unusual for nausea and vomiting not to occur in small bowel obstruction.

That a patient with acute intestinal obstruction may defecate or expel flatus after the onset of the obstruction is not as generally appreciated as it should be. This paradoxical phenomenon, in our experience, occurred more frequently in small intestinal obstruction than in colon obstruction. In the 1950 series[1], 27.7 per cent of the small intestinal obstruction and in 7.5 per cent of the colon obstructions, the patient either defecated or expelled flatus after the onset of the obstruction.

Gangrene of the intestine is usually accompanied by constant, instead of intermittent, pain, and circulatory collapse. There is frequently a palpable tender mass. Gangrene is more common in small intestinal than in colic obstruction.

LABORATORY FINDINGS

The hematological and chemical changes which are manifest in small intestinal obstruction are the result of the acute obstruction, whereas those changes found in colic obstruction are most often the result of long-standing disease, such as carcinoma or diverticulitis.

The total red blood cell count and hematocrit may be increased in far advanced cases of small bowel obstruction because of the marked degree of hemoconcentration. Simultaneously, however, the blood volume may be below normal. Such a situation illustrates emphatically the value of blood volume studies.

On the other hand, in many colon obstructions, a definite degree of anemia and low blood volume is present. This is not due to the obstruction *per se*, but is the result of long-standing disease (carcinoma or diverticulitis).

Chloride, sodium, and potassium deficiencies are common in small bowel obstructions and rare in colon obstruction.

Serum protein deficiencies were manifest in a large number of this series of both small intestinal and colic obstructions. In small intestinal obstruction, this deficiency is due to the transudation of a large amount of protein containing fluid into the lumen of the small bowel. On the other hand, the serum protein deficiency in colon obstructions is usually the result of long-standing disease, particularly carcinoma.

Azotemia is common in far advanced small bowel obstructions and indicates a poor prognosis.

X-RAY

In all suspected cases of ileus, erect (or lateral) and supine abdominal films should be made and carefully studied. The distended loops of bowel can usually be definitely identified in order to localize the site of the obstruction. Serial films are frequently indicated to make a definite diagnosis.

It must be remembered that strangulation may occur early in the disease and may not be accompanied by luminal obstruction. In such a situation, there will be no x-ray evidence of abdominal distention.

In interpreting the flat film it is usually possible to differentiate the smooth walled ileum from the coarse mucosal folds of the jejunum[4]. Distended colon is evident by its position and the haustrations.

When a diagnosis of colon obstruction is made, barium enema should be done to determine the type of colon obstruction. Volvulus will produce a conical termination of the barium colon, whereas carcinoma and diverticulitis produce an abrupt termination of the barium column.

Under no circumstances should barium ever be given by mouth in ileus. On the other hand, it is permissible, in infantile obstructions, to administer lipiodol through a gastric tube to localize the obstruction.

TREATMENT

As a result of the numerous differences between small intestinal obstruction and colic obstruction, it naturally follows that the treatment of the two types of mechanical obstruction also differ in many respects. Generally speaking, most acute obstructions of the small intestine should be treated by direct surgical attack upon the lesion. At the same time that the obstruction is relieved, the cause of the obstruction is also remedied.

On the other hand, colic obstruction, particularly when due to carcinoma or diverticulitis, is treated by indirect surgical attack. The colon proximal to the lesion is decompressed and no attempt is made to remove the obstructing lesion at the primary operation. The cause of the obstruction is subsequently eradicated at a second operative procedure.

Small Intestine. The treatment of mechanical obstruction of the small intestine should be directed toward three objectives: 1) early operative release of the obstruction; 2) the replacement of fluid mineral, hemic and vitamin deficiencies; and 3) decompression of the small intestine by intubation. There are also important miscellaneous therapeutic procedures.

Operation should be performed immediately. In only a small percentage of cases is delay indicated for the purpose of improving the general condition of the patient with fluids, blood and intubation.

Under no circumstances should there be delay if there is a possibility of strangulation. The poor condition of such patients can be improved only by resection of the gangrenous intestine.

Endotracheal inhalation (ether or cyclopropane) or spinal anesthesia should be used depending on the individual case. An adequate and correctly placed incision is important. Frequently, from careful examination of the scout films of the abdomen, it is possible definitely to localize the site of the obstruction and minimize the extent of abdominal exploration.

When exploring the small intestine, it is preferable to explore the decompressed bowel from below the site of obstruction in an upward direction, rather than handling the distended bowel above the site of the obstruction. This, however, is not always technically possible.

If the distention is great, the bowel may be deflated by needle aspiration.

When resection is indicated, either an open or aseptic type of anastomosis can be done. The method used depends on the preference of the individual operation. End-to-end anastomosis is preferable to side-to-side. However, less experienced surgeons may find the side-to-side anastomosis more expedient because of the difference in the size of the bowel lumen above and below the obstruction.

Exteriorization resection of the small bowel should be avoided except when the patient is in extremis.

During the operation for small bowel obstruction, it is essential to support the patient adequately by means of infusions and blood in order that a careful and unhurried operative procedure can be performed.

Saline infusions may be given preoperatively if laboratory data indicate a sodium and chloride deficiency. However, saline should be avoided during the operation and in the immediate postoperative period because of the sodium retention which occurs at that time.

If the Miller-Abbott (or Cantor) tube has previously been placed in the stomach with the tip at the pylorus, it may be possible to pass the tip of the tube manually through the pylorus and facilitate subsequent decompression of the small intestine. Enterostomy is rarely indicated in the treatment of acute obstruction of the small intestine.

Fluid and mineral replacement should begin as soon as the patient is seen, and continued during the operation and throughout the critical part of the postoperative period. Each case should be carefully individualized as to type and amount of fluids. Chlorides, sodium, potassium, glucose, Hartman's solution, sodium lactate and other minerals should be given as indicated.

The administration of whole blood is frequently indicated. Blood volume determinations are the best indicators for the amount of blood to be given. Blood is particularly necessary when strangulation is present.

In cases of long-standing obstruction of the small intestine, marked hemoconcentration may be present. In spite of this finding, the blood volume is low and transfusions, in addition to infusions, are indicated.

A twenty-four-hour urinary output of 1,000 cc. usually indicates that hydration is adequate.

Decompression of the small intestine by gastrointestinal intubation is the third important phase of the treatment of small bowel obstruction. The Miller-Abbott tube or some other type of small intestinal tube is the best means of decompressing the small intestine above the site of obstruction. It must be emphasized, however, that the Miller-Abbott tube is not a substitute for operative intervention. It is merely an adjunct to operative treatment.

When small intestinal intubation was first used, many mistakes were made by using intubation as a possible substitute for operation. Patients died as a result of the delay in operation and the condition of many others was greatly jeopardized.

Frequently the Miller-Abbott tube is delayed in its entrance into the small intestine. However, if a large enough tube is used and the openings in the end are of sufficient size, the tube will act as a gastric or duodenal suction even though it does not pass farther down into the small intestine.

In the treatment of small intestinal obstruction there are several miscellaneous therapeutic measures which are also of importance. In markedly distended cases, the administration of a high concentration of oxygen will frequently assist in decompressing the intestine. Morphine should be administered in regular doses because of its tonic and splinting effect upon the intestine. The application of heat to the abdomen is also of therapeutic value in combating the distention.

In the treatment of any type of mechanical ileus, the use of prostigmine, pituitrin, or other drugs to stimulate peristalsis, is definitely contraindicated. Enemas, flushes, or purgatives also should not be used. Until the ileus is definitely overcome, the patient should be given nothing by mouth.

Massive doses of antibiotics, particularly the wide-spectrum type, are particularly indicated when strangulation or perforation has occurred.

Non-operative treatment in small intestinal obstruction is permissible in certain early postoperative obstructions due to fibrinous adhesions. Also, in cases of recurrent obstruction from old adhesions, when there is no suggestion of strangulation, intubation without operation may solve the problem. However, such a policy is risky and the patient must be carefully observed. Operation should always be immediately performed if there is any doubt whatsoever.

Colic Obstruction. Immediate operation is indicated in all cases of acute colic obstruction except those cases of volvulus of the sigmoid in which it can be definitely determined that gangrene has not occurred. In such cases, proctosigmoidoscopic intubation of the colon will usually produce adequate decompression.

The operative treatment of acute colic obstruction due to carcinoma or diverticulitis differs from the treatment of acute obstruction of the small intestine in that these types of colic obstruction should be treated merely by operative decompression of the colon proximal to the obstructing lesion.

Immediate resection of an acutely obstructing colon lesion carries an extremely high mortality and should be avoided when possible.

Immediate resection of an acutely obstructing colon lesion is indicated only in the following situations: 1) perforated, obstructed carcinoma; 2) good risk patients with early obstruction of the right colon; 3) gangrenous sigmoid volvulus; 4) mesocolic thrombosis with gangrene.

The temptation to resect an acutely obstructing carcinoma of the colon is one to which many surgeons succumb and should be avoided except as mentioned above. It must be remembered that the patient with acute malignant obstruction of the colon is in immediate danger from the obstruction, and is in remote danger from the primary disease, carcinoma. The surgeon's immediate concern at the original operation is to overcome the obstruction by proximal decompression, and any attempt to remove the carcinoma is usually contraindicated.

The question whether or not to perform a cecostomy or a right transverse colostomy for acutely obstructing carcinoma of the left colon is one which is still being debated.

Although the transverse loop colostomy is a somewhat more difficult procedure from a technical standpoint than the cecostomy, it is our opinion that the advantages of colostomy greatly outnumber the disadvantages.

A colostomy can be performed aseptically and defunctionalization of the colon is more complete. Also, decompression is complete and can be obtained immediately if large catheters are passed down each of the loops of the colostomy. Early ambulation can be obtained more rapidly after colostomy than after cecostomy. Wound infection and wound disruption are relatively common after cecostomy and uncommon after transverse loop colostomy. The main disadvantage of transverse loop colostomy is that it necessitates a second operative procedure for closing.

For acute obstructing carcinoma of the right colon, the procedure of choice is ileo-transverse colostomy[5] with or without cecostomy or cecostomy alone. In the occasional good risk patient with an early obstructing carcinoma of the right colon, immediate resection is permissible if the surgeon's technical skill justifies the increased risk.

There are two types of common colon obstructions in which the operative treatment differs fundamentally from that employed in obstructions due to carcinoma or diverticulitis. In volvulus of the sigmoid colon and intussusception, direct operative attack upon the obstructing lesion is indicated.

Volvulus of the colon occurs most often in the sigmoid region. In a previous series[6] of twenty-five cases of colic volvulus, sigmoid volvulus occurred in twenty-two.

In many cases of volvulus of the sigmoid, operative intervention, as an emergency measure, is not necessary due to the fact that proctosigmoidoscopic intubation of the sigmoid colon can frequently overcome the volvulus. In using this type of therapeutic procedure, one must be absolutely certain that there are no vascular changes in the wall of the bowel. In the present series, proctosigmoidoscopic intubation was performed in four patients with sigmoid volvulus, with one fatality. This death was the result of unrecognized gangrene of the colon.

Volvulus of the right colon and transverse colon should be treated by immediate operation. Detorsion should be performed, and some type of fixation can be attempted. Resection is indicated only if vascular changes are present. In cases of recurrent volvulus, resection should be performed as an elective interval procedure.

The technique of proctosigmoidoscopic intubation of the sigmoid colon in acute volvulus is worthy of mention. The procedure is best done with the patient in the head-down position. The proctoscope should be inserted under direct vision. Large amounts of air should not be injected into the colon. The condition of the mucosa must be carefully noted, and, if there is any suggestion of vascular changes, operative intervention is indicated. By carefully inserting the sigmoidoscope, the distended loop of colon can be entered and it will usually suddenly and forcibly evacuate itself through the sigmoidoscope.

After adequate decompression has been obtained, a long soft rubber tube (28 to 30 caliber), approximately 15 inches long, should be inserted well up into the sigmoid colon. The tube should then be sutured to the anus and left in place for a period of two to three days.

Immediately following intubation, the abdomen should be checked carefully by means of a flat plate to be certain that the volvulus has been decompressed.

In cases of sigmoid volvulus in which there is a possibility of vascular changes in the wall of the intestine, or in which intubation has been unsuccessful, laparotomy with detorsion of the volvulus is indicated. After detorsion is performed, some type of fixation of the sigmoid colon to the lateral abdominal wall can be performed, and simultaneously a long rectal tube can be manipulated up into the sigmoid colon to maintain decompression for a period of several days.

Colocolic intussusception is handled in essentially the same way as ileocolic intussusception. Direct operative attack is indicated for release of the obstruction. A detailed discussion of intussusception is not in the scope of this communication, as this form of intestinal obstruction in itself presents an individual problem with many ramifications.

In all cases of acute colic obstruction, gastrointestinal intubation of some type should be used. The Miller-Abbott tube can be inserted if the degree of small intestinal distention is marked. However, as mentioned previously, frequently the small intestinal distention is minimal and such energetic measures as the Miller-Abbott tube are not necessary. A gastric or duodenal suction will usually suffice.

In a previous series[5] of colic obstructions which we have studied, the use of the Miller-Abbott tube was greatly abused. Intestinal intubation was attempted, unfortunately, as a therapeutic measure to substitute for operation.

The Miller-Abbott tube was used in thirty-four patients, with fifteen deaths, a mortality much higher than the over-all mortality of all the colic obstructions. In ten of these, intubation of the small intestine was successful and there were six deaths, a 60 per cent mortality. This indicates that the surgeon had a false sense of security when intubation was successful, and operation was delayed, resulting in the high mortality.

On the other hand, in the twenty-four cases in which intubation was unsuccessful, there were only nine deaths. The surgeon fortunately was forced to operate because he was unsuccessful in intubating the small intestine and the patient thereby was better off.

In a further breakdown of these thirty-four cases, in the thirty-two patients who were operated upon, there were thirteen deaths. On the other hand, two of the patients were not operated upon and both died.

This indicates the harm that can be done by the injudicious use of the Miller-Abbott tube as a substitute for operation in the treatment of colic obstruction. Similar errors have been made in the handling of acute small intestinal obstruction.

The patient with an acute colic obstruction should be adequately supported by means of fluid and blood. However, the problem of chemical imbalance is rarely severe in colon obstruction, and fluid replacement is a relatively simple problem.

It must be remembered that these patients frequently fall into the old age group, and will not tolerate large amounts of rapidly administered fluids, particularly saline solution. The miscellaneous therapeutic measures listed under the treatment of small bowel obstruction (such as morphine, oxygen, vitamins, heat) also have an important place in the treatment of colon obstructions.

SUMMARY AND CONCLUSIONS

1. A series of 798 cases of acute intestinal obstruction have been analyzed from Charity Hospital and Touro Infirmary in New Orleans.

2. Improvement in the mortality of both small intestinal and colic obstructions is evident in these two hospitals.

3. The differences between acute obstruction of the small intestine and acute colic obstruction are again emphasized.

4. Various phases of the treatment of mechanical intestinal obstruction are discussed in detail.

5. The subject of intestinal obstruction is not a closed issue. A continued high mortality in certain types of obstructions indicates the necessity of further clinical and experimental studies.

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Annual Oration

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In starting out to prepare for this hour I first consulted Mr. Webster to find what he had to say about "Oration," and found it to be: "A formal public speech." There I stopped for there wasn't much about my subject, or myself, that was formal. But I read on, and again I quote: "Especially one given in connection with a ceremony or anniversary." I felt somewhat better. But then I thought. That makes me the orator, so I looked a bit further down and found: "Orator . . . a skilled, eloquent public speaker." Well, I just closed Mr. Webster and put him away along with my notepad . . . thinking . . . I'll just call President McCall tomorrow and tell him he asked the wrong man. So to bed . . . but NOT to sleep! Finally the thought came that it was an opportunity to pay one more tribute to a man whom I loved. So, I am endeavoring to bring you a brief story of a long, useful, and, yes, successful life. My story is about one whom I first knew of sixty years ago as the son of "Brother Tom Dye," who had severe malaria, and whom my Dad was called to treat. Then, beginning in 1919, I knew him for the more than thirty-four years by daily and intimate association, almost as close as the members of our own families. Because of this association I loved him, and because I loved him was perhaps the reason I was given the honor to bring you this (all too short for many of you could add much more) biography of the man called DR. TOM DYE.

Thomas Melville Dye was born September 5, 1874, at Cockrum Crossroads on Pigeon Roost Creek, near where it emptied into Coldwater River, a few miles north of Bucksnort, in De Soto County, Mississippi, the son of Thomas Wesley and Ellen Allen Dye. His father, an itinerant Methodist minister, was known as one of the leading preachers and debaters of his day, and even in his last days read his Bible in the original Greek (whence Tom, perhaps, inherited some of his quickness, aptness, and alertness). His mother died of "consumption" when he was yet a boy. He was one of six children, having one brother and four sisters. He attended the "free" schools at the several pastorates which his father filled, including one in Clearwater, Florida, where they had traveled by wagon from north Mississippi for his mother's health. He spent three years at Millsaps College, having matriculated there its opening year. He was graduated from Tulane Medical School in May, 1900.

His first practice was at Florence, Mississippi, a few miles south of Jackson. Here he met, and later married, Miss Mary Osborne Johnson of Jefferson County, a music teacher in the Florence school. No doubt this was his life's greatest achievement, for no finer, more devoted, more Christian wife, mother, and woman ever lived in the opinion of all who knew her. They were married June 12, 1901. To this union were born seven children, six sons, all of whom reached manhood. The oldest, Reverend T. M. Dye, Jr., is now a minister in the Mississippi Methodist Conference; Bradford, a lawyer in Grenada; Thomas, a public accountant in Clarksdale, and Millsaps, a banker in Clarksdale. Four actively served their country in World War II, two of whom gave their lives. (Blanton directly on aircraft carrier *Franklin* when it was bombed and nearly lost . . . and Allan, the youngest son, indirectly the result of service in the China-Burma-India Theatre). A daughter, Eleanor DeSha, died of membranous croup at the age of about two years.

Dye moved from Florence to Sherard in Coahoma County in 1902, and from there to Clarksdale the latter part of 1908, where he bought some of the equipment and occupied the offices of Dr. E. H. Martin (president 1905-6), who moved to Hot Springs, Arkansas, where he became still more famous. Dye occupied these offices until he joined me in a suite in the McWilliams Building January 1, 1922. I might add *his name is still on the doors.* Thus you see my thirty-odd years of daily association mentioned earlier.

As would be expected, Dye was a Methodist, and a sincere lover of the attendance (with his family) at his church. His membership in the Clarksdale Methodist Church began about 1886 when his father was pastor, and again when he returned to Clarksdale. For many years he was an active steward, and was chairman of the Board of Trustees at his death, or a continuous membership covering a period of more than forty-five years. During gasoline-less Sundays of World War I he was out early to make his calls . . . then home, where he left his car, and walked with his family more than a mile to church.

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*Presented at the eighty-seventh annual meeting of the Mississippi State Medical Association, Biloxi, Miss., May 10, 1955.

On Sunday, June 19, 1949, his church honored him with "Doctor Dye Day," celebrating his fifty years of medical practice and service to humanity. At this service were sung the two songs he loved best . . . *The Old Rugged Cross*, and *Faith of Our Fathers*. A tribute was paid by Dr. T. G. Hughes, who had moved to Clarksdale less than a year before Dr. Dye, and his "Fifty Year" certificate and pin were appropriately presented by our own Dr. W. H. Anderson (president 1940-41).

I remember his frequent reference to one sermon he heard from Dr. Roy L. Smith, who was speaking of Jacob digging wells, and by so doing how they did good for so many people then and for many generations to follow, and admonished his congregation to "go about digging wells." In his latter years Dye would often start out on some mission of mercy . . . to visit a cripple or shut-in, to console a bereaved friend, or other errand of brotherly love and kindness, and would say to Jessie, "I'll be back in an hour or so." She would ask, in order to locate him if needed in his office, "Where are you going?" His answer would be, *I'm going to dig some wells.*

This biography would be far from complete, and most certainly not fully pleasing to him without tribute being paid to Jessie (then Mrs. Henry Smith), who was the mainstay in our offices for more than thirteen years. I hereby add my tribute to Jessie who has been so much help to me in the preparation of this oration. She was secretary and registrar at several meetings of this Association. After "Johnnie" (his pet name for his beloved wife) left us, Dye leaned much more heavily on Jessie and could not have loved her more had she been his own daughter, and he never called on her in vain for she was always ready to assist, comfort, or listen . . . and sometimes argue with him, which he loved, but frequently lost to her. I am quite sure there was no one to whom he would rather have lost an argument.

Dr. Dye's interests were not limited to the practice of medicine. He was also interested in all civic affairs, as a Christian citizen and doctor should be. He served for twenty years on the Clarksdale School Board (most of these as secretary), or as long as he had children of school age. I am told by H. B. Heidelberg, superintendent of schools, that Dye rarely missed a meeting.

He served two four-year terms as mayor of Clarksdale, and the city prospered under a clean, honest, and progressive administration. Among the accomplishments was the building of a magnificent auditorium and health center, which compares favorably with larger cities, and other improvements such as the expansion of the city-owned water and light plant, and building one of the first so-called fireproof high school buildings at a cost of one and a quarter million dollars.

Dr. Dye was always neat in his dress. In summer he, for many years, wore white linens, well pressed and spotless, but always with that same black "string bow-tie," that you remember so well. I never saw him with any other type or color tie. As he was clean and neat in his dress so also was he in his speech. I have been with him under some of life's most trying experiences, like, say, a puncture in a hole filled with mud and water . . . the missing of a clean shot at a turkey which he had stalked and called up to good range after an hour or more of motionless stillness . . . someone driving by on a wet street and splashing muddy water on one of those fresh white linens, and many others. I have never heard him utter an oath or use a coarse word . . . worse than "dag-nabbit," his favorite . . . nor heard him tell a dirty, or vulgar, or obscene story.

The printed "History of the Mississippi State Medical Association" first records Tom Dye in office as councilor in 1908-9, and continuing there until his election as president, 1916-17; then assuming office of secretary, succeeding E. F. Howard, president 1930-31, who entered service in World War I, June 15, 1917. He continued as secretary until he insisted on being relieved about three years ago. This service of thirty-five years was the longest record of any state medical secretary in the United States. Dr. Holman Taylor, of Texas, served thirty-two. Thus you see he was an active officer of the Association for forty-four years. During this term of service Dye missed only one meeting, the one in Greenville in 1936, at which time he was confined in the Oxford Hospital for a right mastoid and lateral sinus thrombosis, from which he had a very stormy period and recovered due only to the skillful and tender ministrations of Billy Guyton, president 1950-51, John Culley, president 1932-32, Dr. W. Likely Simpson, of Memphis, the good nurses, and the prayers of his many friends.

Dye was one of the organizers, and a charter member, of the Clarksdale and Six Counties Medical Society, which recently held its 106th semi-annual meeting, and was for a number of years its secretary.

Dye was a typical "family doctor." Being an inveterate reader he kept well posted on the advances in medicine and was very successful. I have heard him say he was never troubled with insomnia. "When I wake up I read 'til I get to sleep again." He went to bed early, had a nap, then waked and read—slept—and then read again. He had a reputation of "getting there *quick*," especially at night, and he stayed until the patient was relieved. Perhaps his prowess was in obstetries. He was an acknowledged expert in doing versions, and was frequently called in consultation in a fairly large area around Clarksdale. I have frequently heard him say that the had lost only one mother. She was a primipara of one of the prominent families of the town, and seen in consultation with Dr. J. W. Grey, president 1908-9, and died very suddenly just after the live baby was born. This was before our first hospital was built. He used quite a good deal of his own modification of "twilight sleep." At one time a local physician told me he had looked over records of births in Coahoma County for three years and found that Dye was doing about as much obstetrics as all the other doctors together.

Possibly due to the early loss of his mother, and to his saintly wife, Dye had a very great respect and reverence for all womanhood, and a definite appreciation of their good company. No doubt many of you ladies present remember how he loved all of you in this Association. There was a very close friendship between him and Maude Williams, wife of Dan Williams (president 1911-12). Maude was a prime mover in organizing the Auxiliary of this Association and was its first president.

He was vindictive, at times, yet had a forgiving heart. When quite a young doctor, during his first months of practice, he felt that an older doctor in this Association did him a wrong. This thought stayed many years. In one of our many heart-to-heart talks he told me that the doctor was a very fine man, but it was hard to like him fully because of the act of bygone days. Finally the doctor was nominated for president of this Association. When Dye learned of the nomination he said to me: "Good! Now is my chance to get even with him and get the matter out of my soul." Dye made a bee-line to and told the doctor that he had harbored the wrong through the years, but now he was going to get even . . . saying, "I am going to vote for you for president, and then help you make one of the best presidents we have ever had." The doctor *was* elected and history records he made a good president. They were much closer friends thereafter.

Dr. Dye loved the woods and camp life. Loved to hunt, but he always had a good time on a camp-hunt whether the game was plentiful or the kill good. He always worked hard and hunted hard on camps. No one did his share of either, but rather he did *more* than his own share. He was a pretty good shot and usually brought in his portion of the game. His most frequent companion on hunts, really almost constant, was Mr. J. M. Brooks, a lawyer of Clarksdale, who, too, started his final journey while on an outing . . . a fishing trip to Moon Lake, on whose banks he died. I have more than once heard each of them say that he would like to go that way. I made quite a few camps with them . . . enjoyable trips they were, too. May I tell you of one such trip?

Dye was a great eater, particularly in camp after a day's tramp through the woods. I have often heard him say that his family ate well because he loved so well to eat.

In camp, because I am a rather slow eater, I always had to swallow and chew later to get my share, when he, Mr. Brooks, and Jimmie Cartwright and I were together. I remember one meal of one hunt when I took my time and beat him eating. Dye and Brooks had taken a long tramp to spy out the territory, and got in fairly late. Jimmie and I had hunted nearer camp, but with little luck, so as we got near the camp (on the banks of the Mississippi River) we needed a little shooting practice, so shot at most anything in sight, and reached camp with, among other things, a rather large hawk which Jimmie dressed; and, with two squirrels killed earlier, he put it on to parboil, making ready for supper . . . later adding from camp supplies tomatoes, corn, potatoes, canned beef, etc. When Dr. Dye and Mr. Brooks came in, the "slum-gullion" was about ready to eat. In serving, Jimmie saw that Dye and Brooks got a hawk leg each, and these could (???) look like squirrel legs. After much discussion of the toughness of the squirrel, Jimmie said, "This damn hawk is too tough for me . . . I'm going to get me some squirrel meat!" Then Dye and Brooks realized what was up and (I can see them now) did not want much supper anyway. So Jimmie and I took our time and had plenty of "slum-gullion" for that one meal.

After Mr. Brooks' death Dr. Dye found others who would go with him, but often stayed in camp alone, with first one, then another, friend dropping in for a day or night. In the last few years he spent as much as three weeks "vacation," as he called it, in such manner . . . coming to town to get fresh food and a good bath, when necessary. He had a homemade house-trailer and some large tarpaulins, which made open-air shelter outside; stoves (kerosene and gasoline), cook-ing utensils, etc., along with his hunting and fishing equipment. The beds were inside the trailer. It was to this trailer and camp he went on the afternoon of March 30, 1954, to be up early the next day to spot some turkeys and to make ready for the opening of the season the second morning, on April 1, *his* last camp. At some time during the night of March 31 his trailer burned . . . probably from the oil stove, no doubt the fumes of which first asphyxiated him, then later exploded, almost *entirely* cremating him. The smouldering remains of the camp were discovered by a friend, Jim Dunn, of Alligator, on whose property the camp was located, as he was passing about daylight on his way to hunt.

You will remember earlier I mentioned that I had heard Dr. Dye and Mr. Brooks state that they would "like to be found in the woods."

I told you in the beginning that I would endeavor to tell you a story about a long, useful, and successful life. This is my story. I shall leave you to judge whether it was a long, and useful, and successful life that was lived by the man we called Dr. Tom Dye.

The Cervix As a Focus of Infection*

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INTRODUCTION

Cervical disease causes more illness than all other gynecological conditions combined. Three-fourths of all women who consult a physician have some kind of trouble with the cervix. The gynecologist is constantly aware of the role of the cervix in harboring disease, but it is vitally important that the general practitioner who sees the patient first should immediately recognize, readily diagnose and early eradicate affections of the cervix. Any abnormality of the cervix should be considered potentially serious.

The cervix serves as a focus of infection, disseminating micro-organisms and their toxins by way of the lymphatic network along the uterus and broad ligaments producing inflammation, cellulitis or abscess, and/or by way of the bloodstream to more distant parts of the body. The tendency to involvement of organs remote from the pelvis was recognized almost a century ago by Marion Sims, the patron saint of womanhood who cured his patients of many ills by treating the cervix. This line of thought was brought out by Sturmdorf in 1916 and substantiated by Moenck in 1924. She produced acute arthritis in animals with streptococci isolated from cases of endocervicitis, thus demonstrating that cervical streptococci have an affinity for joint tissue. Infections of the cervix are characterized by a chronicity not found in other structures except tonsils, sinuses and teeth. Just as the teeth, sinuses, and tonsils may be responsible for systemic affections, so may the cervix be the causative factor in rheumatic, neuritic and vascular disturbances. Due to this similarity, the cervix has been called the "pelvic tonsil."

ETIOLOGY

The acutely inflamed cervix, when seen by the physician is frequently caused by the gonococcus. The mucosa is more fiery red than from any other infection, and its appearance is pathognomonic. The streptococcic and staphylococcic infections are almost invariably post-partum and the cervix is seldom seen in the acute stage of infection because speculum examination is rarely performed for fear of disseminating the infection. Trichomonas vaginalis and Monilia albicans vaginitis may be harbored in the endocervical glands after the acute symptoms of these infestations are controlled, only to give rise to recurrences following laxity of treatment.

At delivery there are usually numerous small lacerations and frequently sizable tears, with contusion and swelling of the tissues. Within a few days there is low-grade fever and a foul lochia. This condition as a clinical entity is most often unrecognized in the mildly acute stage. The infection passes by continuity of tissue to the mucous membrane of the uterus, and by the lymphatics to the tube and ovaries. In the more fulminating infections there may be cellulitis and abscess.

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*Read before the Delta Medical Society, October 13, 1954, and the Clarksdale-Six Counties Medical Society, March 23, 1955.

PATHOLOGY

The mucous lining of the cervical canal is composed largely of high columnar epithelium with numerous openings for the ducts of the deep penetrating racemose glands. These glands, branching in character, are lined with goblet-shaped columnar cells placed in one layer on a basement membrane, and are embedded deeply in the smooth muscle of the cervix. The nuclei of these cells are near the base, and the outer ends extrude a clear mucus of alkaline reaction with pH 7.0 to 7.5. The cervical glands nearer the external os are more numerous and more deeply placed, and in this location have squamous epithelium from the vaginal portion of the cervix dipping into the orifices of the ducts to varying depths. In this tissue there is an acid flora with pH 4.0 to 4.5. This normal vaginal acidity is produced by the desquamation of the vaginal stratified epithelium, the estrin action, depositing these glycogen-containing cells for fermentation into acid by the Döderlein bacilli, the normal inhabitants of the vagina.

Any disturbance of the Döderlein bacilli, such as a lack of estrin, soda douches, bichloride douches or other strong antiseptics, will increase the alkalinity of the vaginal flora. If a pH of 6.5 to 7.5 is produced, the thin squamous epithelium of the vaginal portion of the cervix is destroyed. Then the columnar epithelium from within the cervical canal pushes outward into an environment similar to that whence it has come. This piling up of columnar epithelial cells is termed an erosion. There is hypertrophy and hyperplasia of the submucosal tissues with round-cell infiltration that eventually develops into fibrosis. When infection is present in the vagina or cervix the pH is always on the alkaline side, 5.5 to 7.5, with one exception, fungus mycosis vaginitis, which produces pH 3.5 to 4.0.

In the second stage of the inflammatory process there is replacement of the glandular epithelium by squamous cells, which seal over the orifices of the ducts with the formation of Nabothian cysts containing mucus, pus cells and pathogenic bacteria.

SYMPTOMATOLOGY

During and after the puerperium there are myriads of complaints that are attributed by woman, the submissive individual to her recent procreative experience. Among those symptoms that may be caused by endocervicitis are:

Leucorrhea

Nervousness

Backache

Headache

Dull aching pains in lower abdomen extending down into pelvis.

A bearing down sensation in the pelvis.

Dyspareunia, and staining after intercourse.

Dysmenorrhea

Menorrhagia

Metorrhagia

Sterility

Bladder urgency and frequency, with or without pain or burning, the "irritable bladder" or "gravel."

General malaise, fatigue or weakness.

Dizziness or vertigo.

Anorexia with subsequent loss of weight.

Aching pains in joints or muscles, stiff muscles.

Rheumatism and arthritis.

Indigestion, belching, borborygmus, constipation and flatus.

Persistent low-grade fever, "F. U. O."

Neuralgia, neuritis, especially sciatica, and paresthesias.

Vulvar pruritis. Heaviness in the perineal region.

Cardiovascular symptoms, anginoid pains, palpitation, effort syndrome, hypertension.

Reflex symptoms with gallbladder or kidney pain. "side hurts."

Psychic symptoms, insomnia, irritability, crying spells, changes of behavior, disorientation, inability to concentrate on marital and household duties.

With few exceptions, all patients with endocervicitis complain of symptoms referable to other parts of the body.

DIAGNOSIS

Inspection of the vulva and perineum may reveal leukorrhea and superficial excoriation of the skin. Digital examination of the vagina may reveal the cervix large and irregular, due to multiparity, edema, fibrosis, laceration, erosion, or cysts. By manipulation of the cervix the examiner may elicit in the patient the symptoms of complaint, the "visceral excitation pain." Speculum examination with exposure of the cervix reveals the typical signs of laceration, hypertrophy, erosion, eversion, mucous or fibrous polyps, and/or Nabothian cysts. Frequently there is found a large mucopurulent plug appearing at the external os and filling the cervical canal. This plug, generally difficult to remove, can be readily dissolved by use of a cotton swab moistened with saline and rolled in carotid powder, applied directly to the endocervical canal. Such cleansing will allow better observation of the external os.

Differential diagnosis. Any cervical lesion may be *precancerous.* Therefore it is of utmost importance that early diagnosis is made and treatment instituted. A differential diagnostic procedure described by Schiller consists of painting the eroded cervix with Gram's iodine solution. This test is based on the fact that normal vaginal cells are rich in glycogen, whereas carcinoma cells contain little or no glycogen. Benign lesions take a mahogany brown stain, whereas malignant tissue does not take the stain. Benign lesions are red, soft, velvety, elastic, and do not bleed easily, while malignancy tissue is hard, friable, bleeds easily and profusely, and gives a slimey, glistening appearance. Biopsies should be taken of suspicious areas, or to confirm any suggestive positive diagnostic signs of carcinoma. Regional lymph glands may be enlarged and palpable in the parametrial areas in any but the earliest stages of carcinoma.

Early pregnancy may present the same red areolar at the external os, but the characteristic history and the positive signs of pregnancy, together with intradermal and other pregnancy tests are diagnostic. If these criteria are inconclusive, then watchful waiting will in time clear up the diagnostic picture.

With *syphilitic ulcerations* of the cervix there is true loss of tissue with induration of the edges of the lesion. Dark-field examinations are usually positive, but blood serology is of doubtful reliability.

Lymphogranuloma occurs almost exclusively in colored people. The appearance of the lesion and associated lesions, plus the intradermal Frey test will readily establish a diagnosis.

In Trichomonas vaginalis vaginitis there may be some erosion of the external os, but there is more profuse and foamy discharge, the entire vaginal mucosa is rough and fiery red, and the characteristic motile organism is readily demonstrable in the smear or hanging drop preparation.

In the *tubercular ulceration* of the cervix there is true loss of tissue with ragged undermined edges, the mucosa is pale and anemic in appearance, and in the vast majority of cases there is a primary seet of tuberculosis in other parts of the body. A positive smear for acid-fast organisms and guinea-pig inoculation will render the diagnosis absolute.

Whitish flakes on the surface of the cervix which easily rub off are usually monilia albicans. If they do not rub off they are *leukoplakia.*

Other pathologic conditions that may be encountered upon careful examination of the cervix include *lacerations,* single, bilateral or stellate, *eversion* of the mucosa, *polyps,* mucous or fibrous, and stenosis of the external os.

TREATMENT

Prophylactic: Reduction of the incidence of gonorrhea by education, prophylaxis, early and adequate treatment will reduce the incidence of endocervicitis. Conservative obstetrics will also reduce endocervicitis tremendously. Delivery should never be attempted, or even rupture of the membranes, until the cervix is fully dilated. A dry labor is more exhausting to the mother, and is more traumatizing to the cervix. The use of pituitrin during labor before delivery increases the incidence and extent of cervical lacerations. Vaginal examinations during labor without sterile preparation of the patient are responsible for much post-partum morbidity. Manual dilatation of the cervix should be avoided, as should early or misapplication of forceps. Repair of lacerations of the cervix should be accomplished immediately if conditions permit. Sterile medicated acid douches may be used fairly early in the puerperium.

Active treatment of the acute illness: If the condition is acute with fever and tenderness in the fornices and along the uterosacral ligament, as evidenced by tenderness on manipulation of the cervix, treatment should consist of rest, heat, sedatives, penicillin, sulfa and/or other antibiotic therapy. Active treatment of the cervix should not be started until the acute stages are past; otherwise parametritis, cellulitis, abscess or septicemia may result.

Active treatment of the lesion: If the condition presents none of the acute symptoms, the lesion may be treated locally and vigorously.

THERMAL

Hippocrates used the hot iron.

In 1811 Percy used the glowing iron.

In 1843 Lambell used the same.

In 1906 Hunner used the Pacqueline cautery.

In 1911 Dickinson used the fine wire nasal-tip cautery which is yet one of the safest and most effective methods of treatment.

CHEMICAL

Antiseptics: Silver nitrate, iodine.

Caustics: Chromic acid crystals, caustic potash. These result in a high percentage of stenosis.

Powders: maintaining a vaginal acidity with pH 4.0 - 4.5 Floraquin tablets or powder in atomizer or blower. Use nitrazine paper as indicator to determine pH.

Douches: Lactic acid 15 grains in two quarts of previously boiled warm water making a 1:2000 solution, b.i.d., will maintain vaginal pH 4.0 to 4.5. This solution is free of contamination (vinegar is not), and is economical. There are numerous commercial douche powders and solutions. Be sure that the solution is acid when prepared for use. Our Delta water is highly alkaline and may reduce the acidity of the douche solution. Avoid antiseptic douches such as bichloride and lysol as they eliminate the normal flora (Döderlein bacilli) and interfere with the restoration of normal physiology in the vagina and cervix.

ELECTRICAL

Electrocoagulation: Using the short-wave diathermy machine with the indifferent electrode applied to the abdomen or sacrum, lesions may be treated with the ball electrode, the needle or spatula-shaped electrode with radial strokes extending from deeply in the cervical canal outward to the external os and across the lips of the cervix to the full extent of the lesion. The instrument is allowed to remain in contact with the tissue under moderate pressure until there appears a whitish circular area about the electrode 2 to 4 millimeters thick. The bacterial effect of the coagulating current extends even deeper than the white area, and destroys the deeply infected racemos glands. There is found a minimum of scar tissue beneath the newly-formed squamous epithelium following this type of coagulation. A special bipolar electrode may be used to advantage.

Electroconization: The mucous lining of the cervical canal with its infected glandular tissue is quickly excised with the fast-cutting current using a wire set at an angle on the instrument and rotated in the cervical canal. It is imperative that this procedure should be followed by regular dilatation of the canal to prevent stenosis.

Electroionization: In 1930 a method was developed using the galvanic current to ionize a copper solution which infiltrated the tissues producing dehydration and coagulation. This method proved to be somewhat complicated, required multiple treatments, and certainly had no advantages over electrocoagulation.

SURGICAL

Nabothian glands may be simply punctured, incised or excised. Curettage of erosions of the cervical lips, or of the canal. Biopsy of isolated lesions, or excision of the lesion. Sturmdorf trachelorrhaphy, an operation excising the cervix. Total or complete hysterectomy, vaginal or abdominal.

Radiation: Radium or x-ray, used to advantage no doubt in times past, but mentioned at this time only to be condemned.

CRYOTHERAPY

Cold may be applied in such a way that no damage is done to the cellular structure, such as compresses or ice bags to relieve pain and localize inflammation. Also cold may be applied to tissue in such a manner that the integrity of these structures is destroyed: Solid carbon dioxide snow (dry ice). There is available a very efficient apparatus for this method of treatment.

CASE REPORTS

CASE 1. White female, 54, para V, complaining of pain along the course of the right sciatic nerve producing great debility. Coagulation of a large cervical erosion with Nabothian cysts. The pain completely disappeared as the cervical lesion cleared up.

CASE 2. White female, 28, para II, acute inflammatory arthritis right knee with pain, fever, general debility, loss of weight, leukorrhea. There was a large, fiery red cervical erosion that followed a septic abortion four weeks previously. Only moderate improvement followed antibiotic and other conservative therapy. Coagulation of the cervical lesion was performed. Two days later the signs and symptoms of arthritis in the knee were greatly improved. Two weeks later there was no pain or swelling of the previously involved joint, and almost complete function.

CASE 3. White female, 22, para I, sacral backache, dyspareunia, leukorrhea since delivery 18 months previously. Diagnosed and treated as sacroiliac arthritis for which tonsillectomy had been done, two teeth extracted, and sinuses treated sixteen times. She had had a series of 30 chiropractic adjustments. Complete remission of symptoms followed coagulation of an erosion of the cervix with Nabothian cysts.

CASE 6. White female, 32, para II, 10 months postpartum, backache, nervousness, insomnia, irritability, anxiety tensions, dyspareunia, fights her husband; all symptoms dating from soon after birth of her last baby. Three large Nabothian cysts were incised and drained, acid douches. Four weeks later the husband said, "Doc, I want to pay you what I owe you, and here's ten dollars extra."

CASE 4. Colored female, 46, para VI, arterial hypertension with headache in early mornings. Good response to apresoline in 1952 and 1953. Backache and pains down legs. Large, boggy, edematous cervix with numerous cysts was coagulated deeply, March, 1954. Patient chopped cotton during the summer, and picked cotton during the fall of 1954 and without definitive treatment the blood pressure has remained 140/90 and below.

CASE 5. White female, 28, para I, child 9 years old, intolerable backache all her married life. Erosion of cervix coagulated, patient menstruated only twice thereafter, and 12 months after coagulation, after a four-hour labor, was delivered of an eight-pound normal baby. The patient spoke of suing the physician for getting her pregnant.

Trilene and Its Use in General Practice*

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TRILENE and its inhaler appear to be the answer to the G.P.'s request for a portable, economic, safe analgesic drug which can be administered readily in the office, home, or clinic without trained personnel. The general opinion is that trilene is safe only when used as an analgesic, not as an anesthetic. By analgesia we mean loss of sensation but not loss of consciousness. Any time that trilene is used for anesthesia it should be done so only by a trained anesthesiologist. The use of trilene is becoming more and more popular. It is readily administered with ease, the inhaler being a simple portable compact apparatus. The induction is rapid (merely a matter of a few deep breaths) and recovery is just as fast. Patients do not require pre-medication with atropine nor do they have to fast since nausea and vomiting hardly ever occur. There are practically no side effects on recovery. It has been used quite extensively and is reported to provide satisfactory analgesia for delivery, episiotomy and repair. It is being used for suturing lacerations and minor surgery in the office. Dentists are using it for extractions and other dental procedures. Some urologists are using it for cystoscopic examinations. Amnesia is present in a high percentage of cases.

Trilene is trichloroethylene which is a stable liquid at ordinary temperatures and conditions. It should be stored in a cool dark place. It is similar to chloroform and is colored blue to distinguish the two since their odors are very similar. Trilene is non-inflammable except when mixed with high concentrations of oxygen. Above 125 degrees centigrade it decomposes into phosgene and hydrochloric acid. It should never be used in a closed system with soda lime, as the two undergo a chemical reaction producing trichloroacetylene which is very toxic. Neither patients nor attendants should be allowed to smoke when trilene is in use as this is stated to cause the production of phosgene and HCl. Any one of the standard inhalers may be used, the concentration of the trilene-air mixture being controlled by the gauge on the inhaler. Care should be taken when filling the inhaler to wipe the outside of the apparatus dry, as trilene will blister the skin. Also when using it over long periods of time the mask should be wiped dry at frequent intervals to prevent condensation of trilene as this may cause burns of the skin and possible herpetic lesions and facial dermatitis.

Trilene has a margin of safety of three as compared to 0.65 for chloroform and eight for ether. It is as potent as chloroform. The margin of safety is the difference between the percentage of a given drug which will cause analgesia and the percentage which will be fatal.

My experience with trilene has been limited to a very small series: 46 deliveries, I and D of a palmar abscess, reduction of a dislocated shoulder, two sponge forceps D and C's for incomplete abortions, reduction of a simple fracture, and three urethral dilations for rather severe strictures. Trilene was supplemented with demerol in the majority of cases. In two primiparous patients the trilene was not sufficient and they were given saddle block anesthesia. The remainder of the deliveries were under trilene and demerol. All primiparas were delivered with episiotomy and low outlet forceps. I feel that I probably exceeded the analgesia limits in some of these patients. I find trilene to be most satisfactory for multiparous patients. The patient should be instructed in the use of the inhaler and self administration is advised. An attendant should be with the patient during the entire course of trilene inhalation. The mask should be removed from the patient's face between contractions and at any time the patient loses consciousness. A very low concentration should be used at the onset and gradually adjusted to the patient's needs. Very few patients objected to the use of the inhaler. I noted no effect on the F.H. tones or the cardio-vascular system other than a bradycardia. The effect on uterine contractions and progress of labor was insignificant as long as analgesic concentrations were used. Muscle relaxation is not obtained under analgesic concentrations and if the need of this is anticipated some other form of anesthesia should be used. No adverse effects attributable to trilene were noted in the newborns. It is reported that trilene readily passes the placental barrier and that if used in anesthetic concentrations the baby may be excessively sleepy and anesthetized. One patient in this series presented at five months pregnancy in severe heart failure on the basis of aortic insufficiency and auricular fibrillation. She was well compensated with digitalis and converted to a regular rhythm on pronestyl. She was delivered under trilene with no ill effects.

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*Read before the sixty-third semi-annual meeting of the Delta Medical Society, April 13, 1955, at Cleveland, Miss.

Trilene is such a good analgesic and has such a rapid onset and is administered with such ease that I unconsciously have a tendency to use it for anesthesia. In view of this I would like to discuss the possible dangers associated with trilene. I feel that as G.P.'s using trilene for anesthesia in the office, clinic, or home where there is a sparsity of available trained personnel, we are strictly asking for trouble. One good sign of overdosage is tachypnea, however, in the early stage of administration painful stimuli may cause tachypnea. An overdose may cause respiratory arrest without previous tachypnea. Fortunately this usually responds rapidly to withdrawal of the drug, artificial respiration and oxygen. If the patient is watched closely and at any time that consciousness is lost the mask is promptly removed, overdosage will be avoided and analgesic levels will not be exceeded.

Trilene has a definite effect on the cardiovascular system. According to industrial reports the two most frequent causes of death appear to be narcosis to the point of respiratory arrest and primary cardiac failure. Of less frequency are ventricular fibrillation, hepatic failure and anoxia. In the August 1954 issue of *The Archives of Industrial Hygiene and Occupational Medicine*, five fatal cases of trichloroethylene poisoning are reported. Four were inhalation deaths at degreasing jobs. The fifth died in hepato-renal failure from accidental ingestion. The sudden inhalation deaths were attributed to ventricular fibrillation. Autopsy examinations showed only generalized congestion of the viscera but toxicological study revealed varying concentrations of trichloroethylene. The highest concentrations of trilene are usually found in the brain and lung.

There seems to be some disagreement among the various authors as to the seriousness and amount of danger involved with trilene of the C-V system. It has been proved by EKG study that vagal tone is increased thus causing bradycardia and sometimes slight hypotension. This sets the stage for cardiac arrhythmias. Nodal rhythm, delayed auricular and ventricular conduction, and bradycardia are usually considered harmless. Multi-focal ventricular tachycardia, cardiac standstill and ventricular fibrillation are dangerous and are stated to occur in the lower first and second plane of trilene anesthesia. Therefore trilene is recommended only for analgesia. One author reports 120 cases in which EKG's were obtained. There were no changes here, however in 10 cases where trilene was used for light anesthesia six, or 60 per cent, showed cardiac arrhythmias. It is for these reasons that I feel we are asking for trouble when we use trilene for suturing children since as a rule the mixture is forced on the child. There are reports of convulsions in children under the age of two in whom trilene was used. Some authors use trilene as anesthesia for minor surgery and report no complications. I feel that any time analgesic concentrations are exceeded we should be on the alert for cardiac and respiratory difficulty and should stop the drug immediately if any of this occurs. Also I feel that we are pushing trilene beyond its intended use.

In a personal communication from Dr. John Adriani, Director of the Department of Anesthesia, Charity Hospital, New Orleans, La., he advises that trilene not be used for anesthesia because it has cardiac effects and possible liver damage. "It works very well as an analgesic mixed with air and I doubt very much that intermittent use in that way without having the patient lose consciousness would cause any harm. I think where the difficulties arise in using the drug is that an attempt is made to use it for surgical anesthesia for which purpose as I say we condemn the drug."

Dr. Curtis Caine, anesthesiologist of Jackson, Miss., states that the cardiac arrhythmias produced by trilene are very similar to those seen with cyclopropane. Adrenalin is therefore contraindicated with its use. Dr. Caine considers it a safe and useful analgesic drug when used properly. Since trilene produces glycogenolysis it probably should not be used in dehydrated patients or patients with liver disease. I used trilene intermittently on one patient over the course of several days of protracted prolonged labor. This patient became clinically jaundiced after delivery. This responded rapidly to the usual treatment and I felt that dehydration and trilene were the cause for the jaundice.

In closing I would like to re-emphasize these points. Trilene is an excellent analgesic agent. It is perfectly safe only when analgesic concentrations are not exceeded. If analgesic concentrations are exceeded adequate trained personnel and anesthesia equipment should be available. Caution should be observed in patients with pre-existing cardio-vascular or hepatic disease. The effects on the C-V system should always be borne in mind and if any of these occur the drug should be discontinued. Analgesic concentrations as a rule will not be exceeded if the mixture is self-administered by the patient and the mask removed instantly if the patient loses consciousness or tachypnea occurs.

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Hyaline Membrane Disease of the Newborn*

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APPROXIMATELY 25,000 infants die yearly of hyaline membrane disease or roughly 1 out of every 400 live births. Of all premature infants who die in the first 24 hours, if clinically recognizable defects are eliminated, 90 per cent die of this condition.

The term hyaline membrane disease is derived from the findings in the lungs of a granular, eosinophilic, hyaline membrane lining the terminal bronchioles, the alveolar ducts and atria. Other terms which have been given this condition are congenital atelectasis, congenital alveolar dysplasia and aspiration pneumonia. In addition to the presence of a membrane the lungs show marked congestion and atelectasis.

The cause or causes of this condition are not determined and both extrinsic and intrinsic factors appear to play a role. Extrinsic factors which are thought to produce this condition include aspiration of amniotic fluid and high oxygen concentrations. Supporters of the endogenous theory believe that the membrane is the product of the infant's blood which escaped into the lung following injury with subsequent alterations. The demonstration recently by a group at the University of Tennessee of the pulmonary basement membrane above the hyaline membrane would tend to support this endogenous theory.

Respiration is necessary before this membrane is produced, as none has been found in stillborns and very rarely have any been found in infants dying less than one hour following birth. Associated factors are the presence of this condition in children of diabetic mothers and following Cesarean section. Potter found that all infants born by Cesarean section who died during the first few days of life and were not malformed or erythroblastotic had hyaline membrane disease. The incidence of infant death in diabetic mothers from this condition is approximately twice that of nondiabetic mothers.

Clinically the first few hours after birth may be uneventful although usually there is some degree of respiratory difficulty from birth. After a few hours respiration becomes labored and ineffective and the baby develops cyanosis. There is decreased intensity of breath sounds with a marked disproportion between the exaggerated respiration and breath sounds. If placed in oxygen at this time there is usually temporary improvement. Progressive respiratory difficulty again develops despite continuous oxygen. There is marked retraction of ribs and sternum until the sternum collapses and death ensues. The time between onset of symptoms and death varies from one hour to two days.

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If the course of the disease is followed by x-rays one sees in the early stages a fine miliary mottling throughout the lung fields. This is followed by a coarser more coalescent type of opacity. As the condition progresses the shadows become confluent due to lobar and lobular consolidation and collapse. The use of x-ray in the early stages helps to differentiate hyaline membrane disease from intracranial hemorrhage, pneumonia, esophagotracheal fistula, and diaphragmatic hernia.

Treatment is for the most part disappointing. The most effective measures have been oxygen, high humidity, and postural drainage. The addition of either Alevaire or alcohol to the humidifier has proved of some value experimentally. Oxygen at higher concentrations than 50-60 per cent appears to make the condition worse. In animals the disease is made worse by the use of trypsin and hyaluronidase inhalations. The use of steriod hormones tends to hasten death. Stabilization of the chest wall with wires or towel clips also seems to be of very little value.

Since with active therapy, the results, at best, are poor, the treatment of choice is preventive. Factors that weaken the ability of the infant to cough out aspirated material should be avoided. These would include over-sedation, maternal hypotension, and the avoidance of hematogenic shock by waiting until cord pulsations cease in order to obtain as much cord blood as possible. Further measures to be taken are gastric aspiration following Cesarean section, tracheal aspiration in those infants who are having respiratory difficulty, maintenance of high humidity in the incubator while avoiding extremely high oxygen concentrations, postural drainage of 15-30°, and the use of a broad spectrum antibiotic to prevent the further complications of a pneumonia.

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DISCUSSION

Dr. Howard A. Nelson (Greenwood)—Although today's treatment of the premature infant is the best the world has known, and it is constantly improving, our salvage rate is still not good enough. Any baby born weighing under 1000 gms. with a survival rate of about 5 per cent or weighing 1000-1500 gms. with a survival rate of 35 per cent would agree to that statement. In 1946 there were nearly 75,000 stillbirths and 79,000 neonatal deaths. These figures give both the doctor and the mother a challenge that cannot be ignored, and it is not being ignored. By more careful, earlier and more regular prenatal care, many who would have been stillborns are alive and many prematures are carried further along in pregnancy and are "less premature" when born.

The hyaline membrane syndrome occurs early in the neonatal period, mostly in prematures, more often in diabetic mothers, and Cesarean section cases; thus advocacy of better control of the diabetic mother and allowing the section case to go to term. It would be preferable to allow the mother to go into labor before section is done rather than to deliver a premature, say, two weeks before the expected date of confinement and have the infant develop the hyaline membrane syndrome.

A better understanding of the wetting substances, the use of supersaturated atmosphere for 24 to 48 hours has done lots to penetrate the film and prevent atelectasis.

I would like to report a case from my experience that in my opinion, had the hyaline membrane syndrome.

The child was a white female weighing 5 lbs. 9 ozs. and was delivered by Cesarean section two weeks prior to the anticipated date of confinement because the mother had had a previous section, her membranes ruptured, and she was having premature labor. The section was done without any undue trouble. The child was delivered, cried spontaneously and did quite well for the first few hours of life. After four hours after delivery, the patient became cyanotic, developed respiratory embarrassment with a grunting type of respiration and a marked retraction of the sternum with inspiration. Measures taken included placing the infant in the incubator using supersaturated atmosphere, postural drainage, and parenteral administrations of fluids. X-ray studies at 24 hours indicated small non-aereated areas of atelectasis.

The above measures were continued and the child was discharged in apparently good condition on the twenty-fifth day.

Coexistent Cholecystic and Cardiac Disease*

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THE PROBLEM of coexisting disease of the gallbladder and of the heart continues to command the interest and tax the ingenuity of the general practitioner, the internist, the cardiologist, the anesthesiologist, and the general surgeon alike. Recognition of this coexistence is certainly not new. Jenner recognized the two conditions in the case of his friend and eminent British surgeon, John Hunter, and proved their coexistence at autopsy more than 160 years ago[2].

The classic of American medical literature on the subject, by Babcock[1], appeared as early as 1909. Since then the interesting bibliography has grown so that the length of this paper precludes even casual credit to many important developments in the association of the two diseases. I will, however, seek to establish from the literature three points: first, gallbladder disease and cardiac disease do coexist and often with a symptomatology so similar that they require keen diagnostic ability to differentiate and to evaluate the role each may be contributing to any given case; second, coexistence occurs more commonly than one might think; and third, the present concept of the mechanism by which the two diseases are related.

I. COEXISTENCE AND SYMPTOMATOLOGY

Babcock reported 13 cases in which the two conditions coexisted and credited to the symptomatology of gallbladder disease ". . . . the occurrence of disorders in the action of the heart, from arrhythmia and precordial oppression without dyspnea, to demonstrable dilatation and incompetence, dating usually from some attack of biliary colic or acute cholecystitis, and thenceforth maintained by recurrences of the acute disturbance."

Since then Dr. Will Mayo[13], Straus and Hamburger[21], Tennant and Zimmerman[22], and others[14], [18],[20],[23] have emphasized that cholecystitis, particularly with cholelithiasis, can coexist with cardiac disease in many patients.

It is perhaps academic to remind this group of clinicians that, although biliary pain is normally referred along the seventh and eighth dorsal segmental nerves and heart pain from the fifth cervical to the fourth dorsal, pain caused by the two conditions can be confused. All of you have observed biliary colic which was substernal and coronary pain referred to the abdomen. Fitz-Hugh and Wolferth[9] in 1935 pointed out that "an attack of angina pectoris or acute coronary occlusion may so closely mimic acute calculous obstruction of the biliary tract, or some other more surgically imperative catastrophe in this region that the surgeon may be disastrously tricked into operating and conversely a patient with gallstone disease may present such a convincing array of cardiac symptoms that the internist may wrongly condemn the sufferer to a 'life sentence of cardiac servitude'."

Patterson[14] has since emphasized the problem of mimicry and Wakefield[23] has cautioned against too enthusiastic surgery before a complete evaluation of the two conditions can be obtained.

II. THE FREQUENCY OF COEXISTENCE

There is definitely no intention in this paper to infer that every patient with cholecystic disease must show cardiac involvement, nor that every cardiac will sooner or later develop gallbladder disease. Coexistence does occur too frequently to be considered coincidental, particularly in patients past fifty years of age. Much too often we tend to classify a patient as a "cardiac" or one of "gallbladder disease" depending on the severity of the predominating symptoms when the patient is first seen. We feel that the knowledge that the two conditions can and do coexist will increase the frequency with which such coexistence will be observed.

Of the various statistical studies[1],[11] in the literature the work of Walsh, Bland, Taquini, and Paul Dudley White[24] stands out. Of 2,737 complete autopsies on persons over 20 years of age, 122 cases (4 per cent) showed both coronary disease and gallbladder disease in the same person. Gallbladder disease occurred twice as commonly in patients with diseased coronary arteries as it did in those with normal coronaries. Of 27 cases of severe gallbladder disease in patients under forty years of age, only one had serious coronary disease, and of six cases of severe coronary disease, five had normal gallbladders. In contrast, nine per cent of 1,082 patients 60 years and over showed coexistent gallbladder and coronary disease, and almost one in three of 316 patients with severe coronary disease had diseased gallbladders. Dr. White pointed out that whatever mechanism is producing coronary disease in young people is not at the same time producing gallbladder disease, and vice versa, and that some factor or factors related in part, at least to an aging process are apparently responsible.

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III. THE MECHANISM OF RELATIONSHIP

There is no evidence to support a supposition that the two conditions are a part of the same disease, either by means of infection which causes the cholecystitis and also affects the myocardium, or that they are both produced by a faulty cholesterol metabolism[16]. More recent investigations[3] seem to indicate that the diseased gallbladder actually aggravates a preexisting cardiac disease.

The demonstration and study[5],[6],[7],[10] of viscerocardiac reflexes in frogs, turtles, and dogs have led to a more physiological approach of the gallbladder-heart relationship. Gilbert, Fenn, and LeRoy[10] in 1940 observed in the dog a decrease in coronary blood flow upon distention of the gallbladder and bile ducts.

In 1942 Ravdin, Royster, and Sanders[15], by distending the common duct, produced in man symptoms of angina which disappeared when the distention was relieved. They concluded that reflexes arising in the extrahepatic bile passages may at times bring about a restriction in coronary blood flow and may further decrease the coronary blood blow brought about by intrinsic changes in the coronary vessels.

Johnston[12] has observed the production of cardiac irregularity while probing the common duct for stones and has abolished this irregular rhythm with novocain.

Ravdin[17] has accepted as conclusive proof the work of Cullen and Reese[8], who used radioactive Na^{24} to demonstrate that rapid distention of the common bile duct with the vagus nerves intact lowers myocardial blood flow but did not when both vagi were cut in the neck.

In the light of our present knowledge, therefore, the mechanism of the gallbladder-heart relationship involves reflexes arising in the extrahepatic biliary passages and transmitted through the vagus nerves causing a reduction in coronary blood flow, which in turn can lead to the production of anginoid pain or cardiac irregularity and progress even to the point of complete myocardial incompetence.

Many of the reports[9],[13],[25] indicate that the removal of the offending gallbladder frequently results in both clinical and electrocardiograph improvement but not in a cure of the cardiac disease.

THE PROBLEMS OF COEXISTENCE

As in most things medical, many of the diagnostic problems of coexistence can be solved with a careful history and physical examination. Naturally pain on exertion is likely to be cardiac while pain which occurs at rest in the middle of the night may well be from the gallbladder. The appearance of precordial discomfort or extrasystoles following the ingestion of fatty foods strongly suggests coexisting cholecystic disease. The symptom sequence of precordial pain, cardiac irregularity, and pulmonary congestion has been observed in our cases more frequently than has simple anginoid pain.

Every case of suspected heart disease should have a thorough study including gallbladder and gastrointestinal x-rays not only to show coexistence with a gallbladder condition, but also to rule out the presence of esophageal hiatus hernia, peptic ulcer, or severe cardiospasm, which conditions may also cloud the differential picture. Electrocardiograms can be very valuable in patients with gallbladder disease. Such study should be made as early in the management of the case as practical.

The evaluation of the role each condition contributes to any given case must be individualized. The question is how much this particular gallbladder disease is aggravating this particular heart condition.

Surgical removal of the offending gallbladder is becoming increasingly more popular and increasingly safer. Ravdin reports[17] a mortality of 3.8 per cent in 260 cases of cholecystectomy in patients with heart disease over a 25-year period, but with only three deaths in the last 217 operations.

Referring all such cases to our surgical colleagues is definitely not the solution. These patients can die of acute coronary thrombosis at or shortly after surgery. Each case must be decided on its merits and the relief expected from surgery weighed carefully against the operative risk involved. These patients should not be "sold" an operation. They should be made fully cognizant of the added, calculated risk such surgery entails, and also warned that biliary surgery does not cure their cardiac disease.

There is, however, a definite place for biliary surgery in the management of these cases and the probability of developing a coexisting cardiac disease in later years should be added to the already established indications for cholecystectomy. Experience with coexistence has already revised our thinking in regard to the so-called "silent gallstone."

Many problems are associated with acute surgical emergencies of the biliary tract in the presence of a known or potentially damaged heart. Such cases require the closest cooperation between the internist, the cardiologist, the anesthesiologist, and the surgeon to answer such questions as: How imminent is this surgical emergency? Can time be allowed to improve the patient's general condition and heart? Will conservative therapy lessen the surgical emergency? If not, what is the anesthetic of choice? Local, spinal, or general? What is the surgical procedure of choice? This may vary from a simple cholecystostomy under local to cholecystectomy and exploration of the common duct. In the very ill patient the former, simpler procedure still has a place. Every possible precaution should be taken to protect the patient not only during the operation but in the preoperative and postoperative periods as well. Preliminary preparation to conserve time at operation is essential. The provision for taking continuous electrocardiograms, if needed, during surgery can be helpful.

It is perhaps strange that biliary surgery is so stressed before the Section on Medicine of this convention. Certainly these patients can be benefited by using the same accepted therapy of antispasmodic and choleretic drugs for the gallbladder and digitalis, quinidine, and hypertensive remedies for the cardiac disease. These drugs, combined with proper rest and diet, are used for exactly the same indications as when either disease occurs alone. Such therapy is of value at any stage of coexistence and is the only treatment available for the poor risk patient. In planning the best therapy for any given case, however, the fact should be kept in mind that while medical therapy may lessen adverse reflexes from the biliary tract, let us not fool ourselves, it will not eliminate them.

The following case reports are presented to illustrate some of the problems of coexistence which have been encountered in our practice:

CASE 1. (Mrs. M. H.) At the age of 45 gallstones were removed during an appendectomy done on a kitchen table. Between the age of 60 and 70 years cramping pain in the right upper quadrant preceded attacks of auricular fibrillation and mild congestive failure followed. At seventy she suffered severe biliary colic and had to be hospitalized. Electrocardiograms showed fibrillation and intraventricular block. X-rays revealed several gallstones and marked pulmonary congestion. Unable to withstand surgery, she improved under treatment. By watching her diet the attacks became less frequent, but between attacks she would not listen to advice for surgery. Death occurred at 76 from cerebral embolus with complete left hemiplegia followed by a large embolus to the left femoral artery.

Comment: The causal relationship between the calculous cholecystitis and the cardiac irregularity and failure could not be questioned. Cholecystectomy in 1921 under more favorable conditions or during one of quiescent periods could have prevented many of her attacks.

CASE 2. (B. J.) From the age of 65 this patient had a known arteriosclerotic heart disease, typical angina of effort, and a moderate hypertension. At 68 he had as severe a coronary thrombosis as I have seen a patient survive. Two years later he developed obstructive jaundice with marked toxic symptoms. When the added risk of surgery was explained to him, he accepted surgery with "I can't go on living like this." He stood the removal of his gallbladder and the common duct quite well. There was marked improvement in both his angina and the digestive symptoms for six years until he succumbed within an hour to a second severe coronary thrombosis at the age of 76.

Comment: How long the diseased gallbladder had been silent or to what extent it had contributed to his angina can not be answered, but treatment of the acute surgical emergency of the biliary tract, even in the face of considerable heart damage, provided six years of comfortable life.

CASE 3. (T. H.) This busy executive at 40 had recurrent attacks of precordial pain with hypertension and electrocardiographic evidence of coronary sclerosis. For five years these attacks increased both in severity and frequency. At 45 he had two episodes of transient obstructive jaundice due to gallstones. Cholecystectomy was done. For the next six years he lived a fairly comfortable but sedentary life and boasted that he could make as much money sitting at his telephone as he formerly did working hard. He died rather suddenly of myocardial infarction at the age of 51.

Comment: There is no doubt that the cholecystectomy reduced both the frequency and severity of his anginal attacks. There is a question whether earlier diagnosis of his gallstone disease and earlier cholecystectomy might have lengthened his life.

CASE 4. (Mrs. M. Y.) This patient has been treated for the past five years for arteriosclerotic heart disease and hypertension. Two years ago she showed repeated attacks of gallbladder pain, nausea, and vomiting. Irregular cardiac rhythm and mild congestive failure followed several attacks. One year ago she had an acute exacerbation of cholecystitis, mild jaundice, and moderate congestive failure. Her cardiac status improved under treatment, but the gallbladder tenderness and jaundice did not subside. In addition she developed pain and tenderness in the right femoral vessels. A subacute gallbladder blocked with many small stones and "mud" was removed as well as a thrombus from the right superficial femoral vein. Her condition improved for several months until she developed a sudden lift hemiplegia. Now at 72 she is showing a definite return of congestive failure.

Comment: Operation in this case was considered the lesser of two evils. There was a temporary improvement but certainly not a cure of her cardiac disease.

CASE 5. (Mrs. A. B. R.) This 73-year-old female has been a known arteriosclerotic cardiac with hypertension and arteriosclerotic Parkinsonism for the past eight years. She has been seen repeatedly for both congestive heart failure and biliary colic. Several gallbladder attacks have been rapidly followed by acute congestive failure in spite of continuous digitalis therapy. She shows a sluggish, poorly functioning, calculous gallbladder.

Comment: This case illustrates the individuality of treatment. In spite of the indications for cholecystectomy and a definite causal relationship of some episodes of congestive failure, it is felt the improvement, which could be expected from surgery, would not offset the very poor surgical risk she represents.

CASE 6. (Mrs. L. C.) This patient was first treated for mild congestive failure six months after a severe myocardial infarction and two years after gallstones had been demonstrated elsewhere. For two years she was treated on numerous occasions for precordial oppression, cardiac irregularity, and pulmonary congestion. Often she would indict some food as the precipitating cause and would indicate that certain attacks were "gallbladder" and others were "heart." At no time was she considered a suitable risk for surgery. She died at 58 of complete myocardial incompetence which followed severe precordial pain, fibrillation, and marked pulmonary congestion.

Comment: This case illustrates the symptom sequence of precordial oppression, cardiac irregularity, and pulmonary congestion frequently seen in these cases. An attack characterized as "gallbladder" was as likely to show this symptom sequence as one from the "heart." While at no time following the coronary infarction was she a suitable risk for surgery, in the eighteen-month interval between the discovery of her gallstones and the infarction she undoubtedly was. Cholecystectomy might not have prevented her coronary but it certainly would have saved this patient much later suffering.

CASE 7. (Mrs. D. P.) This 61-year-old female was admitted with nausea, pallor, sweating, shallow respirations and cyanotic fingernails. A clinical diagnosis of acute myocardial infarction was confirmed by electrocardiogram. One month later she was readmitted with colicky right upper quadrant pain "distinctly different" from her previous pain. There was tenderness over her gallbladder but no jaundice. That night she had severe pain across the upper abdomen followed by a shock-like state. Blood pressure was 70/50 and the pulse difficult to palpate. Was this a second coronary infarction or a cardiac weakness secondary to her gallbladder pain? Electrocardiograms gave the lead to a diagnosis of acute cholecystitis, which subsided. She has done well since on medical management.

Comment: Cholecystograms show no stones and subsequently electrocardiograms have continued to show improvement. Cholecystectomy will be advised only if the acute cholecystitis recurs or if calculi develop.

CASE 8. (J. E. M.) At 64 this moderate arteriosclerotic and hypertensive cardiac had a right hemicolectomy for a large colloid carcinoma of the cecum. Gallstones were an incidental finding at surgery. Two years later he had a small cerebral hemorrhage with a slight residual speech defect. He later developed acute urinary retention necessitating transurethral prostatic resection. His convalescence was complicated by hiccoughs and secondary hemorrhage. At 68 there was mild coronary thrombosis and attacks of epigastric and precordial pain associated with nausea and vomiting. At 70, he had three attacks within five months of precordial pain, fibrillation, and rapid acute left ventricular failure. These attacks came on suddenly at rest in the middle of the night. Before one there had been the ingestion of pecans and before another of angel food cake and milk. The patient himself raised the question of a possible causal relationship of his gallstones. After the third such attack he developed an intense fear that another attack would be fatal. In his own words he summed up his situation with, "I am taking the best care of myself I know how. You doctors are doing everything in your power. If getting my gallbladder out will help prevent another attack, I am willing to take that chance."

With the aid of careful preliminary preparation removal of his calculous gallbladder was accomplished in thirty minutes. No recurrence of his carcinoma was found. Thirty hours following surgery mild shock developed but this responded to administration of whole blood. A series of complications then appeared. First, hiccoughs and from staying so still to avoid hiccoughing, he developed atelectasis and pneumonitis in the right base. On the fourteenth postoperative day he showed some mental confusion and a mounting uremia. Two days later he suffered circulatory collapse following a coronary occlusion and expired.

Comment: This patient elected surgery fully aware of the dangers. He further emphasizes the complications which can occur in such cases. Both the patient and his family were convinced he had made a wise decision. Surgery five years sooner would probably have been more beneficial.

Most of our cases of coexistence have been well past 60 years of age. Frequency in this age group is more common. Diagnosis is not as difficult since the pattern of arteriosclerosis and heart disease is more definitely formed. The fact remains, however, that even with the best results only a few months or a few years of more comfortable life could be obtained.

If there is any merit in presenting such an oft-discussed subject, its value lies in the plea that we, as clinicians, familiarize ourselves with the relationship of coexistence and seek to establish earlier diagnosis. Cholecystectomy in the early stages of coexistence is good preventive medicine. It will eliminate much later suffering and prevent further irreparable damage to the heart. In the later stages when coexistence is quite apparent, the relief one can offer such patients is limited since the damaged heart may contraindicate the removal of the offending gallbladder.

SUMMARY AND CONCLUSIONS

1. The problem of coexisting disease of the gallbladder and of the heart has been discussed as to its symptomatology, its frequency, and the mechanism of relationship.

2. The problems of diagnosis and management of such cases have been presented.

3. The removal of the offending gallbladder will improve but not cure a coexisting cardiac disease.

4. Early diagnosis and treatment of such cases before irreparable damage to the heart has been done is considered good preventive medicine.

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DISCUSSION

Dr. O. G. Eubanks (Crystal Springs) — Dr. Blaine has presented us with a very stimulating paper and he should be commended for his efforts. In his presentation he has covered the subject thoroughly from every angle but I would like to stress a few points that he has already mentioned.

It is well for us to remember that we are dealing with two distinct clinical entities which may occur separately or together. When both diseases coexist it taxes the diagnostic acumen of all who attempt the treatment of these patients because the symptomatology of either gallbladder disease or cardiac disease may mimic each other so clear cut until a period of observation and re-evaluation may be needed to arrive at a correct diagnosis.

Another pitfall in the handling of this group of patients is the occurrence of both diseases in the older age groups, however, the younger groups are not immune from the coexistance of cardiac and gallbladder disease.

Experience has taught us that patients with gallstones and cardiac disease coexisting should have cholecystectomies if their cardiac status can be improved for the surgery.

Statistical studies show that in properly prepared biliary tract disease patients without heart disease the operative mortality is less than one-half of one per cent. Again, the incidence of carci noma in the gallbladder with stones is two per cent, another valid indication for gallbladder surgery.

We feel that the biliary tract acts as a "trigger" mechanism to the coronary vessels which afters the coronary flow and if this "trigger" mechanism can be abolished we will be able to salvage more of our patients and the patient can lead a more comfortable life.

Our pathologist friends find solitary stones with no symptoms, however, these stones may induce coronary attacks during later life. If allowed to progress the cardiac disease may become of such severity that surgical intervention would be too great a risk to undertake, unless symptoms of obstructive jaundice occur, then operative interference would be imperative.

We, as physicians, see patients in the early fourth and fifth decades with gallstones and probably some extra systoles in the heart. We classify this group as primary gallbladder disease when in reality there is a coexistance of heart disease. Rarely do we seek surgical consultation if the patient has no symptoms referable to his gallbladder. I feel that physicians should insist and urge patients to undergo surgery while their physical status is satisfactory. By so doing many distressing symptoms — congestive failure, pain, coronary attacks and jaundice will be altered and sometimes prevented.

Eminent surgeons throughout the country advocate removal of gallstones. Even the late Dr. Will Mayo stated that he was against gallstones.

Wishful waiting allows the biliary tract disease to progress which many times is irreversible and at the same time the cardiac outlook more severe especially with pronounced heart symptoms, thereby causing these patients to become real problems for the physician to handle.

This discussion seems to include much surgery to be presented before a medical section but our surgeon consultants are needed to obliterate the biliary tract disease so that no additional burden will be placed upon the already damaged myocardium.

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THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

RECORD BREAKER

The attendance at our state meeting broke all past records with more than five hundred, or about fifty per cent, of the entire membership of the association registering.

Our state association was honored at its recent meeting in Biloxi by having present the presidents of the two foremost eminent medical organizations of the world, Dr. Martin, president of the American Medical Association, and Dr. R. L. Sanders, president of the Southern Medical Association. Dr. George Lull, Secretary of the American Medical Association, also honored us with his presence.

ARRINGTON HEADS ALUMNI

If the Ole Miss alumni luncheon at the state meeting was an index to the enthusiasm for the four-year medical school, the institution may expect immediate progress and success. Dr. Lamar Arrington of Meridian was elected president of the group, and Dr. James Thompson of Jackson, secretary. Dr. Ike Knox of Vicksburg is the retiring president.

AMA MEETING

The American Medical Association meets in Atlantic City June 6-10. The largest medical association in the world, its first interest is the promotion of scientific medicine and in its application to the sick patient. Within the last few years its vision has been broadened to relate the practice of medicine not only to the individual person and the disease attacking him, but to every phase of human life—medical ethics, citizenship and public relations, medical economics, and legislative affairs—all as they relate to the health of a people. It is endeavoring to give the public through various media the full picture. *Today's Health*, one of the best and safest lay educational media, helps to present medical information, new discoveries, etc., while screening propaganda. These efforts are to bring about a better understanding between the medical profession and the public, to improve and clarify the lay mind's concept of the essentials of medicine and its utilization, while awakening the doctor to his public relations responsibility.

Many doctors are now members of the American Medical Association, are helping and are being helped by a closer relationship between the A.M.A. and the state organization.

Our state association has been well represented over the years in the House of Delegates. Our delegates now are Drs. J. P. Culpepper of Hattiesburg and John Lucas of Greenwood.

GP SECTION

Dr. L. H. McDaniel of Tyronza, Ark., is chairman of the Section on General Practice of the

American Medical Association. He is a past-president of the Mid-South Postgraduate Medical Assembly and president-elect of the Arkansas State Medical, also past councilor of the SMA. His section will have its appeal in the coming meeting.

CANCER OF THE MALE BREAST

The following is from the editorial pages of the *Journal of the AMA*. It is informative and timely.

It has been estimated that about 1 per cent of all carcinomas of the breast occur in men. Although carcinoma of the breast in men resembles the disease in women in various respects, there are several differences. For one, carcinoma of the male breast is a disease of older men, with the average age of men being about 10 years greater than that of women. The clinical picture of cancer of the breast is more uniform in men than in women, owing to the smaller amount of adipose tissue and the subareolar location of the glandular tissue. Tumors are generally palpable on cursory examination of the male breast and are associated with nipple retraction and skin fixation. The axillary and supraclavicular lymph nodes, the lungs, and the central bony skeleton constitute the most common sites for metastasis. Histologically, cancer of the breast is indistinguishable in the sexes and tends to metastasize to the same regions with the same frequency.

Huggins and Taylor recently described their observations of a group of 75 men with carcinoma of the breast, 25 of whom had previously received some form of definitive therapy and 50 of whom had been untreated, except for biopsy. Eight per cent five-year cures were obtained for the overall group of patients; this figure rose to 35 per cent for the most favorable cases. The authors emphasize that early, vigorous surgical treatment is required to cure cancer of the male breast. The classic radical mastectomy procedure is the treatment of choice for patients with surgically favorable findings as well as for borderline lesions. Hormonal and radiation therapy offer palliation in less favorable instances. Orchidectomy as an initial procedure renders the best chance for palliation in patients with disseminated disease.

Viruses—sub-microscopic parasites—are being studied as possible causes and as possible aids to treating cancer.

If I have sown one seed that grows to ripened grain, what matter who shall reap? Mine is the gain.

A FIELD FOR PREVENTION

During March forty-six people were reported killed as a result of motor vehicle accidents in Mississippi. This is a 119 per cent increase over the same month last year. Thirty-seven per cent of the number were in rural areas. Seventeen of those killed were drivers, 23 passengers, and six were pedestrians. Four hundred and seventy-one people were injured. Saturday was the worst day for accidents with Sunday next.

This loss of human life on the highways should be of vital concern to the medical profession. Many elements enter into the causes of these fatalities. The medical profession is on its tiptoes in treating the injured and it might be able to render a great service in helping to prevent these untimely deaths. It is a field for more research.

TOO MUCH FOR US

Dr. R. H. Kampmier, editor of the *Southern Medical Journal*, has written an editorial discussing the matter of "preserving our medical literature." The subject is timely and important. The answer is not easy because of the tremendous volume of printed scientific material clogging every medical library. The editor suggests that some form of microfilm may be the answer, but suggests that a study be made by the American Medical Association.

INDEX IN THIS ISSUE

BETTER TO SERVE

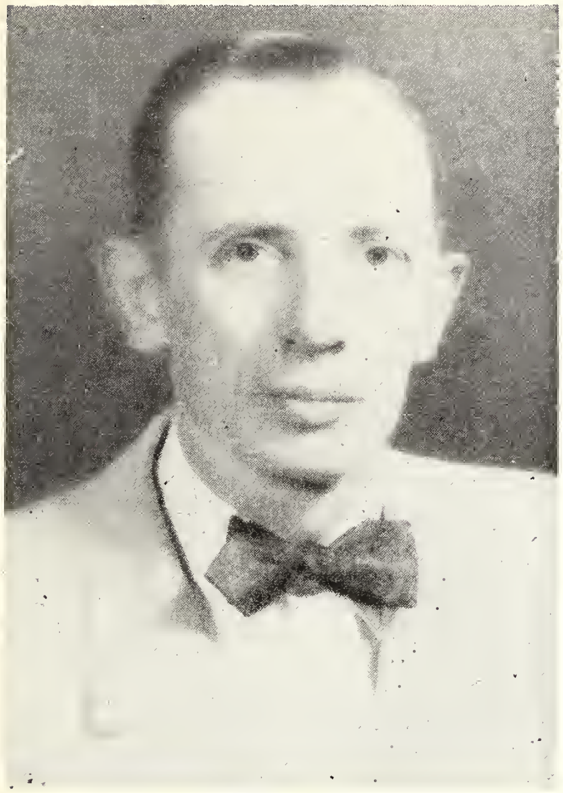
Organized medicine is requiring more and more time on the part of those who participate in the procedures. This is especially true of the presidency. We are amazed at the expenditure of time and effort by the president of our state medical association. His services reach an incalculable figure. Every member can show gratitude by a ready cooperation. Many of our backbone officers give time to organized medicine and do it without acknowledged expressions of appreciation. We have many doctors who do not attend the medical meetings, but every doctor we believe shares the benefits of organized medicine and owes some of his time to it.

Surely no science has advanced faster than medicine, which through organization is better able to keep discovery and advance in liquid form.

People who are the most difficult to please are often the most worth pleasing.

News and Comment

MSMA PRESIDENT



Dr. Bailey

Climaxing a scientific and extraordinary business session, members of the Mississippi State Medical Association elevated Dr. S. Lamar Bailey of Kosciusko to the presidency concluding the eighty-sixth annual session.

Dr. Bailey has been an aggressive and enthusiastic proponent of organized medicine in Mississippi, and does a magnificent public relations job in his practice of good citizenship.

Dr. Bailey is a graduate of the University of Mississippi and received his medical degree at Tulane in New Orleans. He served his internship at Louisville, Ky.

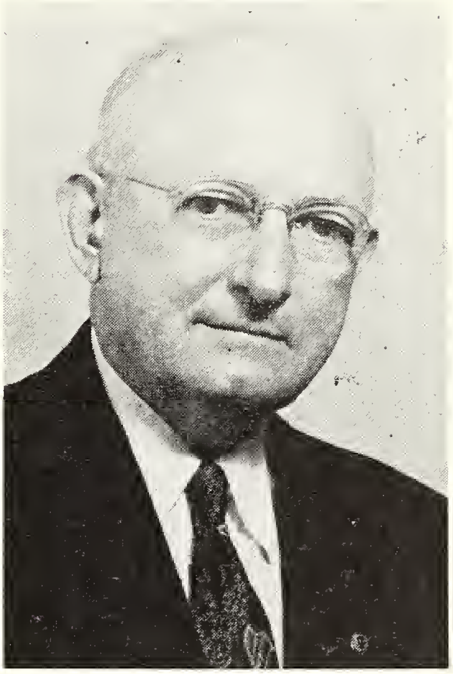
Dr. Bailey is president of the staff of the Montfort Jones Memorial hospital of Kosciusko; is a member of the American Medical Association, of the Southern Medical Association and the International College of Surgeons.. He is president of the North Central Medical Society, and has represented his district on the Council of the Mississippi State Association.

He is also a member of the executive committee of the Mississippi Economic Council; a Shriner, a deacon of the Kosciusko First Baptist church; a past-president of the Ole Miss Alumni association, and of the Kosciusko Rotary Club.

In 1942 he received the Kosciusko Good Citizenship award and for eight years, served as a member of the city board of aldermen.

Golf is Dr. Bailey's major hobby.

PRESIDENT-ELECT



Dr. Ricks

Dr. Henry Crozier Ricks, Jackson, was named president-elect of the Mississippi State Medical Association on May 12 as the 87th annual meeting closed at Biloxi. He will enter office at the centennial annual meeting at Jackson, May 8-10, 1956.

Dr. Ricks was born at Hilton, Georgia, December 6, 1892, the first of eleven children born to Judson Lee and Elizabeth Weaver Ricks. Ten of the eleven children and Dr. Ricks' mother are still living. He attended public school in Georgia and later, Locust Grove Institute. In 1912, he entered Emory University School of Medicine, receiving his M.D. in 1916. He interned at St. Louis Southwestern Railway Hospital, Texarkana, Texas, 1916-1917. Later, he was house physician at Sherman Hospital, Sherman, Texas.

In June 1917, Dr. Ricks volunteered and was commissioned a first lieutenant in the U. S. Army Medical Corps. He served overseas, commanding a medical company and rising to the grade of captain. He holds citations for gallantry in action at Courboin and Meuse-Argonne.

Following discharge from the service in 1919, Dr. Ricks entered the practice of medicine at Caddo, Oklahoma. In 1924, he became Director of Laboratories for the Oklahoma State Board of Health. Later that year, he was graduated from further training at the Army Medical Field Service Station, Carlisle Barracks, Pa., and entered Johns Hopkins where he received his degree as Master of Public Health.

In 1928, Dr. Ricks came to Jackson as Director of the Division of Epidemiology and Director of Communicable Disease Control with the Mississippi State Board of Health. He was named Director of Laboratories in 1938, in which capacity he continues to serve.

Receiving many honors from his colleagues, Dr. Ricks is a past president of the Central Medical Society, 1941 chairman of the Section on Public Health of the Southern Medical Association, and a member and secretary of the MSMA Council. He is currently a member of the Central Medical Society, the MSMA, AMA, SMA, the Mississippi Association of Pathologists, a Fellow in the American Society of Clinical Pathologists as well as a Councilor in that society, the American Society of Tropical Medicine and Hygiene, and the American Public Health Association.

Dr. Ricks is active in church and civic affairs. He serves on the Board of Elders of the First Presbyterian Church, Jackson; he is a member of the Lions Club, a member and past commander of the Louis M. Jiggitts Post No. 110, the American Legion, and the Jackson Chamber of Commerce. His hobbies include hunting, gardening, his bird dogs, and such spectator sports as football and baseball.

He was married to Myrtle Evelyn Hilger of Sherman, Texas, in 1917. There are a son, Dr. Henry C. Ricks, Jr., Jackson, and Mrs. Nathaniel S. Rogers, Jackson. There are four grandchildren, Alice, John, and Lewis Rogers, and Henry C. Ricks, III.

FIFTY-YEAR LUNCHEON

A luncheon meeting of the Fifty-Year Club was held at twelve o'clock on Tuesday, May 10, 1955, in the Sun Room of the Buena Vista Hotel, Biloxi, Mississippi. Dr. E. Leroy Wilkins and Dr. W. T. Wilkins of Clarksdale were hosts in memory of their father and of the late Dr. T. M. Dye of Clarksdale. Members present:

Dr. N. C. Waldrep, Tishomingo
Dr. Harvey F. Garrison, Sr., Jackson
Dr. W. P. Gray, Waynesboro
Dr. Emma Gay, Biloxi
Dr. G. W. F. Rembert, Jackson
Dr. E. C. Parker, Gulfport
Dr. L. L. Minor, R.F.D., Memphis, Tennessee
Dr. B. Lampton Crawford, Tylertown
Dr. C. H. Holman, Carrollton
Dr. J. R. Hill, Corinth
Dr. W. H. Frizell, Brookhaven

Others in attendance:

Dr. Felix J. Underwood, Secretary, Jackson
Dr. W. H. Anderson, Sponsor, Booneville
Dr. E. Leroy Wilkins, Clarksdale
Dr. W. T. Wilkins, Clarksdale
Dr. D. S. Pankratz, Dean, University of Mississippi School of Medicine, University
Dr. S. Lamar Bailey, President,Elect, State Medical Association, Kosciusko
Dr. Stanley A. Hill, Speaker, House of Delegates, State Medical Association, Corinth
Dr. Cummings H. McCall, President, State Medical Association, Gulfport
Dr. George F. Lull, Secretary, American Medical Association, Chicago, Illinois
Dr. R. L. Sanders, President, Southern Medical Association, Memphis, Tennessee
Dr. A. M. Wynne, Merigold
Dr. V. N. Nichols, Carson
Dr. J. K. Avent, Sr., Grenada
Miss Cleta Brinson, Secretary to Doctor Underwood, Jackson.

Dr. W. H. Frizell, president, presided and expressed appreciation to the hosts for their kindness, thoughtfulness, and generosity in entertaining the club. He introduced Dr. Emma Gay who had been practicing medicine fifty years as the "baby" of the number, and asked Doctor Underwood to present her the Fifty-Year certificate and pin.

In making the presentation, Doctor Underwood stated that Doctor Gay had engaged in the practice of medicine fifty years and at the same time had been very civic minded and had wone wonderful work as a volunteer in cancer control. Doctor Frizell extended congratulations to her and pointed out that she was the first woman to become a member of the Fifty-Year Club.

Doctor Underwood, in giving the report of the secretary, stated that 128 physicians had been awarded certificates since the club was organized, the following thirteen having been awarded since the 1954 meeting: Dr. George W. Land, Louin; Dr. Charles P. Mosby, Meridian; Dr. Sherrod R. Towns, Union Church; Dr. Wade H. Sutherland, Booneville; Dr. George W. Googe, Rienzi; Dr. Charles H. Holman, Carrollton; Dr. William R. Kell, Pascagoula; Dr. Harvey L. Shannon, Flora;

Dr. James H. Windham, Ecru; Dr. Kenneth F. McRae, Belmont; Dr. Richard N. Whitfield (State Board of Health), Jackson (Florence); Dr. J. S. Ullman, Natchez; and Dr. Emma Gay, Biloxi.

The secretary read the names of the following ten members whom death had claimed since the last meeting: Dr. Joseph D. Sweany, Minter City; Dr. George D. Hightower, Webb; Dr. F. G. Goodwin, Raymond; Dr. E. J. Mathis, Beaumont; Dr. W. W. Crawford, Hattiesburg; Dr. G. S. Bryan, Amory; Dr. J. L. Melvin, Shuqualak; Dr. T. F. Kilpatrick, Noxapater; Dr. J. T. Longino, Jonestown; and Dr. L. H. Hightower, Itta Bena.

In reporting on biographies of 79 members and 2 honorary members published in the *Mississippi Doctor*, Doctor Underwood expressed appreciation to Doctor Anderson for having contributed space in the journal for the biographies and also for his generosity in having purchased the fifty-year pins which had been presented to members of the club.

Dr. Frizell was re-elected president, Dr. Underwood, secretary, and Dr. Anderson, sponsor.

Abstract from Pediatric Literature

HARVEY F. GARRISON, M.D.

THE HUMAN SOURCE OF TUBERCULOUS INFECTION IN CHILDREN. B. Briggs, R. S. Illingworth and J. Lorber. Lancet 1:263-266 (Feb. 5) 1955 (London, Eng.)

Briggs and associates state that in England the mortality from tuberculosis in childhood has fallen rapidly in the last few years, largely as a result of improved methods of treatment, but the fall in tuberculosis morbidity has not kept pace with the fall in mortality. They made a detailed investigation of the source of infection in 564 children with active intrathoracic or generalized tuberculosis. The children were either inpatients in the Children's Hospital at Sheffield, or outpatients attending the tuberculosis clinic in the Children's Hospital. A really adequate search (one in which the household was investigated, together with persons who, on the basis of history, appeared to be likely sources of infection) was made in 410 of the 564 children. In the 401 adequately investigated cases the source of infection was found in 327 children (81.5 per cent). It was found in 95.9 per cent of 73 children under one year of age, in 86.1 per cent of 101 children aged one, in 84.6 per cent of 117 children aged two to four, and in 64.5 per cent of the 110 children aged 5 to 14. In some children there were multiple contacts. Most of the sources of infection were within the household, for over 75 per cent of the contacts were parents or other persons living in the house. The authors emphasize that it is important to report all cases of childhood tuberculosis, so that an intensive search for the source of infection can be made. This enables the infected adult to be treated and other child contacts to be protected from infection by BCG or other means. It is also important to examine all child contacts immediately when an adult is found to have tuberculosis, so that tuberculin-negative children can be segregated until they have been protected by BCG. All adults with symptoms that might be due to tuberculosis or who may be a source of infection should be subjected to roentgen examination of the chest. Adults whose tuberculosis is supposed to be inactive should receive continued supervision and should be regarded as potentially infectious if they are in contact with children. Children with a negative tuberculin reaction should be excluded from visiting wards and sanatoriums for tuberculous patients. Adults with tuberculosis should be instructed in the infectivity of their condition and in elementary hygiene.

COMMENT:

It has been known for many years that children should not be exposed to active tuberculosis at any length of time. All necessary precaution looking toward this end is absolutely necessary for the prevention of tuberculosis in children. BCG is not used as much in this country as it is in England. We commend this for the attention of our physicians.

POSITIONS AVAILABLE

Several full-time positions are available in the Outpatient Service of the VA Center, Jackson, Mississippi, for well-qualified and experienced general practitioners in good health. The work consists of compensation and pension examinations, and treatment of service-connected veterans. The work week is forty hours. There is no night duty. Thirty days annual leave and fifteen days sick leave are granted yearly. Retirement benefits will accrue under either the U. S. Civil Rights Retirement System or the Federal Social Security System. Both furnished and unfurnished quarters are available on the reservation at reasonable rental. Salary starts at $8,360.00 per annum. Preference will be given to physicians in the older age groups.

DR. M. J. L. HOYE

Succumbing after lengthy illness, Dr. Matthew John Lucas Hoye, 69, prominent in area, state, Southern and national medical and psychiatric circles, died at his home in Meridian May 8. He retired in 1949.

The physician served a number of years as superintendent of the East Mississippi State Hospital in Meridian and was founder of the Hoye Sanitarium, now the Johnson Sanitarium, in Meridian. He also was active in the Central Methodist Church.

Dr. Hoye was a member of the Lauderdale County, East Mississippi, Southern, and American Medical and the Southern and American Psychiatric Associations. He was born in Decatur. Dr. Hoye received his M.D. degree from Tulane University, New Orleans, La., in 1911.

Survivors are his wife, daughter, Mrs. Frank Bellina, Sr., Meridian; granddaughter, Mrs. Ray Irby, Sr., Jackson; grandson, Frank Bellina, Jr., Meridian; great-grandson, Ray Irby, Jr., Jackson; two sisters, Mrs. W. W. Reynolds, Gulfport; and Mrs. R. W. Wallace, Ashland, Va.; brother, H. W. Hoye, Newton; and a number of nieces and nephews.

Rites were held at Webb's Funeral Home with burial in Magnolia Cemetery, Dr. Bruner M. Hunt, pastor, Central Methodist Church, officiating.

WILLIAM A. PRINCE

Services were held April 27 for Dr. William Allen Prince of Vance, who died after 51 years of medical practice in this area.

Dr. Prince died en route to a hospital after he had suffered a heart attack. He was 76.

Services were held at First Methodist Church, with burial in Sumner Cemetery. The Rev. W. L. Wallace, Jr., of Greenwood and the Rev. J. M. Caruthers of Tutwiler, officiated, with Avent Funeral Home in charge.

Born in Tallahatchie County, Dr. Prince had spent most of his life practicing medicine at Vance. He was a member of the board of stewards of the First Methodist Church of Tutwiler, and a member of the Tallahatchie County Medical Society.

He leaves his wife, Mrs. Alice Knowles Prince; two daughters, Mrs. W. S. Garrard of Winona and Mrs. S. C. Moore of Charlotte, N. C.; three sisters, Mrs. L. B. Koonce of Charleston, Miss., Mrs. Louise Anderson of San Antonio, and Mrs. S. N. Brown of Vance.

DR. MILES RHODES

Dr. Miles Rhodes, brother-in-law of Mrs. Fonza Senter and Forest K. Willis of Fulton, died April 18 at the Caldwell Memorial Hospital in Baldwyn. He was 87 years old.

Dr. Rhodes was married 60 years ago to Miss Toxie Willis.

Before studying medicine he was a school teacher in Centerville community. He began his medical practice with Dr. R. D. Kirk, father of Tupelo's Dr. Kirk, at Kirkville, moving later to Guntown from Kirkville.

Before his death Dr. Rhodes had been ill for about three months. He retired from active practice about two years ago after a practice which extended over fifty years.

He received his M.D. degree from Mississippi Medical College, Meridian, in 1908.

Funeral services were held from the Guntown Methodist Church with Rev. Ellis Tucker, pastor, officiating. Burial was in the Guntown Cemetery.

He leaves a daughter, Mrs. L. R. McGuire of Baldwyn, a son, C. E. Rhodes of Merigold, and three sisters.

DR. W. L. ORR

Funeral services for Dr. William Lawrence Orr were said under the spreading oak trees on the front lawn of the house that had been his home, and the home of his father and mother, in Fulton, on May 3.

The lawn was bedecked with floral offerings, tributes of hundreds of friends throughout the county and mid-South, which bespoke the high esteem in which he was held. As the services were being conducted by Rev. R. E. Wasson, pastor of the Fulton Methodist Church, a blue bird perched in the tree above poured forth its plaintive song as though furnishing background music to the reading of the Scriptures. To start the service, Rev. L. M. Lott, pastor of the Fulton Baptist Church, read Alfred Tennyson's "Crossing the Bar," which had been requested by the deceased.

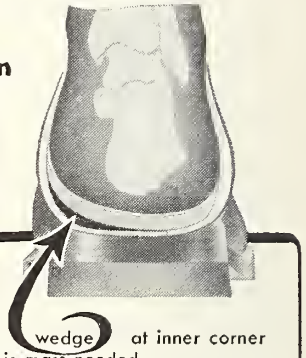
Music for the service was furnished by a number of Dr. Orr's colored friends, who sang three spirituals. The deceased was a lover of spirituals, and often attended the singings in the colored churches in Fulton. He was always accorded a special seat of honor on these occasions.

Death came to him May 2, following a stroke. He had been confined to his bed since June 5, 1954, when he suffered the first of several such strokes. He was 70 years old.

Dr. Orr was educated at the University of Louisville, Louisville, Ky., where he graduated in 1908.

The beloved doctor will always be remembered for his familiar grey suit, red tie and diamond stick-pin. He was buried wearing this familiar clothing.

Burial was in Hillcrest Cemetery, beside his father and mother, with Hawkins Funeral Home in charge of the arrangements. Dr. Orr contributed this cemetery to the Fulton Lodge Free and Accepted Masons, No. 444, in March of 1950, after purchasing the land and moving his father's and mother's bodies to plots he selected. He was a member of the local Masonic body.



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Bronchogenic Carcinoma*

A critique on diagnosis and treatment based on the study of 175 cases in a community hospital

EARL B. WERT, M.D.
Mobile, Ala.

INTRODUCTION

Tumors of the lung seem to have become the most important disease of the respiratory system, and the most important of tumors. A graph illustrating the incidence of tumors over the past ten years would show most tumors by more or less parallel lines, bronchogenic carcinoma by a diagonal line, so marked is the increase. This would seem to represent one of the biologic curiosities of our time, or a quirk of statistics. While this problem remains unsolved quantitatively, evidence seems to be accumulating that a real increase in the disease is occurring. The other interesting feature of the problem is the relationship to cigarette smoking. Here again some competent observers feel the evidence does not yet establish a cause and effect relationship. I think it can be fairly stated that the evidence for each of these issues is highly suggestive; namely, that cancer of the lung is increasing in incidence by serious degrees, and that there is a high correlation between cigarette smoking and the incidence of cancer of the lung. Be this as it may, the diagnosis and management of lesions of the lung present one of the more important aspects of medical practice today. The following remarks concern the practical aspects of this problem, as based on the study of 175 cases of bronchogenic carcinoma occurring in a community practice.

I do not believe we should pursue each aspect of this subject in the classical manner, such as the consideration of symptoms, pathologic patterns, age, and sex incidence, etc. The aspects are well documented and known to all of us. Rather, I should like to dwell critically on certain aspects that have come to light during the past seven years during which we have been studying these cases. We have arrived at these conclusions independently, although each is documented, especially in the recent literature of the past year.

First, let me say a word in regard to the statistics, especially those dealing with the end results of bronchogenic carcinoma. The curability rate of most large clinics for the five-year period is about 5 per cent. At best, this means 5 per cent of the patients who arrived at the clinic, and were studied, survived for five years. While five years have not elapsed to complete our own studies, we have but one patient who is alive without evidence of the disease. Here epidermoid carcinoma complicated bronchiectasis. The cases were collected, as it were, rather than selected, in the interest of studying the over-all problem of bronchogenic carcinoma. Thus, patients with occult primary tumors of the lung, coming to autopsy with cerebral metastasis, as well as those with recurrent laryngeal nerve paralysis and inoperable from the first study, are included. Five of our cases were discovered in asymptomatic stages, were resected, and died of recurrence. Several of these could be classified as "coin" lesions.

In regard to symptoms, symptomatic cancer of the lung should be considered all but incurable, symptoms serving merely to aid in diagnosis. While the peak incidence is in the later years, and the predominance is in the males, the occurrence in females and males of all ages is so high that it must be kept in mind. One interesting sidelight might be mentioned at this point: A relatively benign tumor, the bronchial adenoma, seemingly more common in females in the 20-30 age group, especially in the right lower lobe bronchus, together with the long history of atypical disease, such as atelectasis, tuberculosis, cancer, or bronchiectasis, which should suggest the possibility of this tumor, is one quite amenable to surgical removal.

I should like to speak specifically about certain bronchoscopy, cytologic methods, radiologic methods and finally treatment.

After studying about 50 cases of this disease which had been bronchoscoped, our records showed that we had positive biopsies in only about 6 per cent, in contrast to the figure of 60 per cent claimed by some studies. Looking into the cause for our failures, we found several, which are listed in order of importance somewhat as follows:

1. Limitations of the Instrument: Only conventional straight-ahead tube, light, biopsy forceps, and aspirator were being used. It was difficult or impossible to study the fields laterally, or in retrograde. Curiously enough, most reports do not deal with the instrument

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—perhaps assuming that all bronchoscopists use the retrograde equipment. The visualization of the upper lobes, with biopsy, and especially the selective washing of the bronchi for cytologic studies have been very helpful.

2. Limitations of the Bronchoscopists: The ear, nose and throat specialists, for local reasons, were the only ones doing bronchoscopy. Some did not do the procedure, I am sure, often enough to maintain a high degree of accuracy. With one or two men doing more of the work, the results seem to have improved.
3. Failure to Take Biopsy Specimens: Often no biopsy was taken, even though a mass was visualized, for a variety of reasons, usually technical.
4. Taking too Small Fragments, losing the fragments, or placing them in saline overnight, etc.

An interesting sidelight on this problem developed in the *A.M.A., Arch, of Surgery*, 1952, a paper appeared indicating that about 50 per cent of bronchogenic cancer would provide a positive carinal biopsy from the lymphatics of the submucosa. This led us to try the method with some success, until a deep bite was taken and the patient expired from hemorrhage, on the table. Autopsy showed a pulmonary infarct, simulating malignancy, and a large collateral pulmonary artery or vein had been entered. We have discontinued this practice.

In regard to the use of the cytologic method in connection with bronchoscopy, it was especially difficult to get material satisfactory for study. This distressed us very much—the procedure is not entirely pleasant, the entire procedure, with the laboratory work is quite costly, and yet we felt much of the study was not well done, for the same reasons as outlined above. In addition, improved instruments are used, which can wash each bronchus individually, for concentration of tumor cells. Much of the work is now done by one or two individuals, who work closely with the technologist doing cytology. Further, we established the hospital regulation that no bronchoscopy will be done without the technologist in attendance to handle the material for bacteriologic, as well as cytologic study. This has helped a very great deal.

In the planning program for the 1954 meeting of the Inter-Society Cytologic Council, contributors were requested not to submit papers on pulmonary cytology "as the method is so well established." This summarizes the status of this method very well, and yet our own experience tells the story much better from the point of view of the general practitioner, especially in a community such as ours. With only classical training in morbid anatomy, I was skeptical of the method and, while I tried it, I did poorly, perhaps with a 30 per cent accuracy, which was due in retrospect to a number of deficiencies. We were able to send one of our more promising medical technologists to Dr. Papanicolou's laboratory, and the results were at once apparent. Our accuracy at present is about 95 per cent. We have had one false positive, and since found that Dr. Papanicolaou has had considerable difficulty with differentiating organizing pneumonia from malignancy, and we don't intend to make that mistake again.

Our errors with this method were due to faults of almost every kind, beginning with poor specimens, such as are obtained without proper instruction of the patient to supply a deep cough specimen rather than saliva, to its improper fixation, to too thick preparations poorly stained, etc. Again, the smears should be systematically studied. Beginning at one end of the slide, and using an overlapping technique that will put every cell on the slide in the field, the entire slide must be screened. The usual zig-zag methods, hasty glancing about the smear, etc., is unsatisfactory. The suspicious areas must be dotted and studied by several personnel before reporting. Going back over our material reported before the period of special training, we feel many of the cases should have been reported as "unsatisfactory" rather than as "positive" or "negative."

The x-ray certainly provides the most effective approach to the diagnosis of lung lesions today. We have found some differences in how radiologists report the findings. In general, the men reading our films have been accurate in well over 95 per cent of cases, although one must be familiar with their language. While they do not make the diagnosis with the assurance that the surgeon and internist would prefer, their phrase, "this is most likely a neoplasm" has proved correct in the great majority of cases.

Oblique views of the chest have been of great help in identifying the tumors. In certain instances planograms have actually demonstrated the point at which the tumor has occluded a bronchus, for example. The investment in this study in special cases, has been money well spent.

Perhaps the most instructive datum to come out of our study is that bronchogenic carcinoma, as seen in community hospitals, is essentially a fatal disease. The patients who have had surgery have been treated by competent thoracic surgeons, many trained at the clinics where large series of cases have been operated and reported. Our results have been so uniformly poor that one must stop to wonder if this is really a surgical disease. Our cases have occurred so close to the pleura, or to the hilus, and the lymphatic spread was so easily demonstrated, that although the tumor appeared completely excised grossly, it was difficult to expect that distant metastasis had not occurred. Those patients seen in an asymptomatic stage have also succumbed, in spite of pneumonectomy.

These results stand out so sharply in contrast with the spirit of optimism noted in many reports that I present these data timidly. And yet, conversation with many physicians indicates that for the most part they know of no bona fide case of a cure in bronchogenic carcinoma.

Many of the men who have had these patients have developed the working principle of operating for relief of symptoms only, in the classical case of cancer of the lung. The symptoms of severe cough, hemorrhage, and pain are those usually providing the indication for surgery. The patient with weight loss, shortness of breath, and a shadow by x-ray thought to be "most likely carcinoma" does not receive surgery. The progress of these patients, in our observation, has been no more distressing than those undergoing surgery. The possibility of cure is so remote, and the possibility of demise either in the operating room, or in the hospital, and the debility following removal of an essential organ so near, that surgery has been deferred in those patients.

The management of the asymptomatic discrete lesion of the lung, the "coin" lesion, is almost certainly surgical. Reports indicate the presence of malignancy in these lesions to be from 5 per cent to 35 per cent. My personal feeling is that these figures are misleading, and that certain qualities in the x-ray pattern, the presence or absence of tumor cells on differential washing of the bronchi, will indicate the nature of the lesion, and that the generalization that "any coin lesion" of the chest - lung should be surgically removed. We have seen infarcts, aberrant blood vessels, aortic aneurysms and tuberculomas present as coin lesions, and operated on, and the correct diagnosis made by others on reviewing the material. For these reasons it would seem well to individualize "coin lesions," with the attempt to make the diagnosis, short of surgical intervention, when possible.

In summary, bronchogenic carcinoma is one of the most troublesome and prevalent diseases of the day. The surgical approach to the problem has, in our series, proved less than satisfactory. With the knowledge that surgical removal is rarely curative, in all but the earliest of asymptomatic tumors, the treatment may be non-surgical. The "coin lesion" that has been diagnosed as cancer, or that has not been diagnosed after careful study, will provide an exception to this principle. X-ray studies and carefully conducted cytologic studies are of great value. The relatively rare bronchial adenoma must be kept in mind continually, as it represents a surgically resectable tumor, with an excellent prognosis in many cases.

Abraham Lincoln, 16th President of the U. S. (1809-65): "That some should be rich shows that others may become rich, and hence is just encouragement to industry and enterprise. Let not him who hath no house tear down the house of his neighbor; but rather let him strive diligently to build one for himself, thus, for example, showing confidence that when his own is built, it will stand undisturbed."

"What's the quickest way to the hospital?"

"Close your eyes, cross this street, and you'll be there in a few minutes."

Some Plans and Hopes for the Department of Medicine in the New Four-Year Medical School*

J. R. SNAVELY, M.D.
Jackson, Miss.

As I'm sure all of you know, the University Hospital will receive its first patients in July, and its first students in September. As currently planned, there will be no senior students the first year, and only a small group of junior students. In the course of this first fiscal year it is anticipated that the innumerable administrative and clinical problems associated with opening a new hospital and school will be met and successfully, we hope, solved.

I accepted this offer to appear on the program because I believed some facts and gossip about the new school would interest you, and because I felt it would provide an excellent opportunity for me to present some of our problems to you, and to enlist your help in their solution.

As they say in the literature, the views expressed hereinafter are those of the author, and the state of Mississippi and the governing authorities of the University assume no responsibility for their content and implications.

In general, medical schools and their constituent departments subverse three large functions. The first and in our particular case, most important, is that of *education* in its more narrow sense. Medical students and internes must be taught how to be good general practitioners of medicine, and I believe that it is impossible to overemphasize this aspect of the medical school program. In this category, that of education, also falls the training of specialists in the various medical disciplines, the provision of graduate training for physicians who are engaged in practice, the training of a small corps of investigators in the philosophy and techniques of research, and participation with organized medicine in the education of the lay public in medical matters.

A second function of the medical center is *service* for the community—in this case the state of Mississippi. This function is inseparably interwoven with the first. Service to patients both charity and private, is the exchange medium through which the business of education is conducted. Good patient care is good teaching, which to look ahead, provides the substrate for good clinical research. Service to the people of the state both directly by education and indirectly through their physicians, by providing diagnostic and therapeutic facilities not elsewhere available is another facet of this function.

The third function, *research*, addition to the existent store of medical knowledge, is the highest, finest, and incidentally most expensive and most enjoyable of the functions of institutes of medical learning. This too is inextricably interwoven with the threads of education and service. Every patient with an undiagnosed disease or an unresponsive problem in therapy is best regarded as a research subject. The line between the known and the unknown is poorly defined, and the physician who knows little of the scientific method and its techniques will often find himself inadequate in his practice. Free discussion, willingness to admit error and to learn new things, and simple curiosity, which are the ingredients of research, are equally important in clinical management. New facts, and publications, the packages in which they are purveyed, are the tangible results of research, but the main benefit of active investigation is derived less from these contributions than from the intellectual atmosphere associated with the people involved in investigation, which is generated like a magnetic field where the current of inquiry flows. In this field students feel stimulated to work, even rather dull instructors acquire inspiration, curiosity flowers, discussion becomes active, and dogma, narrowness and stupidity, tend to die out. It would appear that without active programs of investigation, teaching deteriorates to sterile boredom, and dull repetitive recitation and the collation of dusty, moth-eaten facts come to pass for learning.

It is my hope that the Department of Medicine at your Medical School will make a contribution in all three of these areas. The Department will be subdivided into four sections in addition to those of dermatology and neurology. These sections will each be headed by a full-time teacher-investigator who will be first a well-trained internist with an interest in a subspecialty, second, a competent and enthusiastic teacher, and third a man who by desire and training is capable of conducting active research in his field.

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*Presented before the Section on Medicine at the eighty-seventh annual session of the Mississippi State Medical Association, Biloxi, May 10-12, 1955.

The cardiopulmonary department, which later I hope to develop into three sections—one on cardiovascular disease, one on pulmonary diseases and one on hypertension and renal disease—will be headed by Dr. Thomas M. Blake of Nashville. The heart station will include a catheterization unit and blood gas laboratory, and the lung station, dealing at first mainly with elementary spirometry, will, as soon as possible, grow to include the more sophisticated studies of respiratory physiology. Dr. Blake will continue his animal work in experimental artherosclerosis and will launch other investigations in the field.

The section on infectious disease will be headed by Dr. Fred Allison. Clinically and academically Dr. Allison will be the departmental consultant in diseases viral and bacteriological, and has already established himself as an expert in the chemotherapy of infectious disease. His research, to be transplanted from St. Louis, deals with basic problems in the inflammatory response and the pathogenesis of fever, employing the rabbit ear chamber technique.

Dr. Herbert Langford, currently in Richmond, will head the section on metabolism and endocrinology, which as the budget grows, I hope to expand into two separate departments. Dr. Langford will handle the instructional and clinical aspects of his field, and will continue his studies in pituitary physiology, and in the neuro-humoral basis of systemic arterial hypertension.

Dr. Warren Bell will head the section on hematology in addition to his duties as director of the hospital laboratory. He will continue work on the use of human brain extract in the treatment of thrombocytopenia and studies in the preservation of plasma. In the Rh laboratory, Dr. Bell will welcome opportunities to study difficult problems in hemolytic anemia and transfusion reactions.

With growth, sections on gastroenterology, and allergy will be added. Psychiatry will be a separate department with close liaison to medicine, and a section on radio-isotopes is scheduled to be formed jointly by the departments of radiology, physiology, biochemistry, and medicine.

As you know, the hospital will comprise 350 beds, of which 120 to 150 will be occupied by adult medical patients. Fiscally the hospital budget is based on the assumption that the institution's income from patients will account for 50 per cent of its operating cost. This arrangement serves the dual function of providing private patients for instruction, and reducing the cost of the hospital to the taxpayers.

The net effect of this policy probably will be to provide about 50 per cent free and about 50 per cent pay beds. All of the patients will provide teaching material. The free and perhaps some part-pay patients will constitute the "house service," and the full-pay patients in the main will be under the professional care of part-time teachers who are engaged locally in the private practice of medicine, and who gratis or for token salaries contribute their time and services to the University. It cannot be emphasized too strongly that the prime reason for the existence of this hospital is medical education. The wisdom of teaching from both private and free services is so well established as to call for no further discussion. Private patients very quickly become aware of the advantages to them of participation in instruction, and commonly prefer teaching services when given a choice.

With this background, it is apparent to all of you that the free beds of the University Hospital will not provide quantitatively much service to the indigent sick of the state. These few beds could rapidly and permanently be filled with deserving needy patients with chronic and degenerative disease, and the teaching value of the hospital would depreciate rapidly and profoundly. The administration has dedicated itself to preventing this development, and plans to enforce a very rigid admission policy the basis of which can be summarized as follows:

1. Only such patients as can be put to good use in instruction will be admitted to either the fee or private services.
2. Patients will be hospitalized for workup, diagnosis, and often treated to maximum benefit, but no beds will be tied up with problems in chronic disease.
3. The center in no way will compete with already established local channels for the medical attention of those unable to pay.
4. Currently the administrators wish to request that patients be referred to the center by their local physicians, who may obtain appointments for them by letter or by telephone in case of more acute situations. Patients who come to the center should have means of sustaining themselves in Jackson as outpatients in case they are not admitted, and should have means to return to their homes after their studies are complete.

I desire to emphasize that only by adhering to these policies can the University Hospital subserve the purpose for which your legislature created it.

Injuries of the Hand*

J. T. DAVIS, M.D., F.A.C.S., F.I.C.S.
Corinth, Miss.

It has been said that the hand, next to the brain, is the greatest asset to man and it is due the credit for development of man's handiwork. The hand is often thought of as the seeing eye of the blind, the means of communication of the deaf, the highly specialized tool of the musician, the artist, and the surgeon, as well as the means of livelihood to millions of manual and industrial workers.

Although hand injuries occur in all walks of life, it is felt that the ever-increasing incidence of these injuries is probably due to the greater and advancing industrial age in which we are now living. The National Safety Council reports more than 500,000 injuries of the hand each year.

Hand injuries are common in the practice of most all physicians and it behooves us, in all fairness to our patients, at least to familiarize ourselves with the essential fundamentals of their care. The skill and judgment exercised in the early hours following the accident is most often reflected in the degree of success toward functional restoration.

The problem of functional restoration entails composite knowledge and understanding of orthopedic, plastic, and neurological surgery as it pertains to the hand. Colonel Oscar Reeder, in his excellent writings on injuries of the hand published in *Surgery of Trauma,* states: "The normal function of the hand depends on: 1) elasticity of the skin, 2) proper alignment of the bones, 3) flexibility of the joints, 4) movability of tendons, and 5) the integrity of the nerves."

Irreparable damage by trauma, or infection, to any of these structures will most certainly prove a serious handicap to the patient.

EVALUATION

An accurate history of how, when, and where a hand injury has occurred is most essential. The cleanly incised wound within doors is usually attended with good results when repair is done in the early hours. However, the badly mangled hand, grossly contaminated by dirt and foreign material, seen many hours following the accident, presents many complex problems and frequently results in a serious compromise in the function of the hand. Between these two extremes there are many injuries with varying combinations of the HOW, WHEN, AND WHERE factors which will require careful evaluation to determine proper treatment.

The HOW offers information regarding the extent of the trauma, as it pertains to incised, lacerated, and crushing wounds. The WHERE serves as a fair index to the type and extent of contamination, and the WHEN often reflects the possibility of present and impending infection.

Evaluation of the injury regarding diagnosis of fractures, lacerated nerves, and severed tendons should be determined based on thorough x-ray and physical examination. The usual tests of the median, radial, and ulna nerves involved are made, and may I commend to you that not only they be thoroughly performed, but accurately recorded.

Severed tendons are manifested by inability to flex and extend the fingers. The extensor tendons do not offer a serious problem, either in diagnosis or treatment, as they are superficial and readily accessible to examination and require only the simplest of suturing and subsequent splinting in the position of hyperextension. However, the flexor tendons are much more complex. The flexor digitorum profundus travels deep through the palm of the hand and proximal one-half of the proximal phalanx and flexes the distal phalanx. The flexor digitorum sublimus travels superficial to the profundus until it reaches the middle phalanx of the finger, where it splits straddling the profundus and flexing the proximal phalanges. The most common error made in the diagnosis is the failure of the examiner to test the function of the profundus by flexing the distal phalanx against resistance. If the profundus tendon has been severed and the sublimus action retained there still may be fair motion of the finger, but not sustained strength in the distal phalanx, which seriously impairs the usefulness of that finger.

X-rays, anterior-posterior, lateral, and oblique views are usually sufficient for diagnosis of fractures and dislocations.

SURGICAL CARE

Hand injuries should be considered emergencies and all except the most minor injuries should mean a quick trip to the hospital. There, using sterile glove technic with all personnel masked, the wound should be covered and the surrounding skin shaved and thoroughly and repeatedly cleansed with one of the detergents containing G-11, after which the wound is thoroughly lavaged with copious amounts of physiological saline. Antiseptic solutions have no place in the preoperative preparation of wounds of the hand. Sterile rubber finger cots may be fitted over the distal phalanges to avoid contamination from the finger tips and finger nails.

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*Presented before the Section on Surgery at the eighty-seventh annual session of the Mississippi State Medical Association, Biloxi, May 10-12, 1955.

At this point in the procedure it is usually wise to institute anesthesia. For less severe wounds local or regional block may suffice, however, for those wounds which require longer operative time and in children, general anesthesia is the anesthesia of choice.

Hemorrhage is always embarrassing and a definite impediment to the surgeon. Particularly is this true in dealing with injured tendons and nerves. Operating in a bloodless field is made possible by the use of a blood pressure cuff about the upper arm. The cuff is applied over wide and heavy padding, such as a thick towel or sheet, so as to evenly distribute the pressure to the soft tissues. The arm is elevated for one to two minutes in a perpendicular manner to empty all venous channels, the blood pressure cuff rapidly pumped to 280 m.m. and the tubing clamped. With this arrangement the tourniquet cuff may be left on for one to two hours without ill effect. Pain following application of this type of tourniquet is most usually due to marked distention or rupture of the blood-filled venules, and thus great care should be exercised to completely empty the arm of venous blood by perpendicular elevation for at least one to two minutes in addition to firm compression of the arm by Esmarch bandage or by rapid stripping action toward the axillae.

Following anesthesia all drapes are changed and the field made ready for surgical repair. Foreign bodies are sought and removed and conservative débridement of the wound carried out. Gentleness in the handling of soft tissues is paramount to prevent further insult to the already damaged structures.

Now that a complete history has been obtained, thorough physical examination performed, and x-ray findings noted, the surgeon is confronted with two important questions: 1) Can this wound be closed safely? 2) Should primary suture of nerves and tendons be done at this time?

If the wound has been cleanly incised and is attended within the "golden period" of six hours, then the surgeon may elect to close the wound following primary suture of nerves and tendons, in which case no further surgery may be necessary. The time factor, under ideal circumstances, may be lengthened well beyond the six-hour limit and in some instances even to twelve hours, since the advent of the antibiotics. However, it is felt that the latter should in no way be allowed to replace the principles of good surgery. It is the opinion of the more experienced surgeons that the use of the antibiotics should lengthen the time factor, only in the clean incised cases and in those of trauma where adequate débridement can be accomplished. Should the wound be badly lacerated and the deeper structures torn and traumatized. in which state all tissues are less resistant to infection, even though seen within the "golden period" of six hours, the surgeon might elect to do a conservative débridement, effect a covering of all deep structures by skin closure, and leave the nerves and tendons for the reparative stage three to six weeks later. If this wound were to be seen twelve hours following the injury with signs of early infection, then it would be wise to only partially close the wounds, delaying further closure five to ten days, and leave the nerves and tendons for the reparative stage three to six weeks later.

If the surgeon is not familiar with the proper care of hand injuries, particularly the repair of nerves and tendons, it would be far better that he refer the case immediately to one who is more experienced, or if conditions permitted, effect a closure by primary or secondary suture or skin graft and leave the nerves and tendons to be repaired in the reparative stage by one skilled in this particular type of surgery.

FRACTURES

Regardless of how the nerves and tendons are treated, fractures if present, should be repositioned and aligned in the best way possible under the circumstances at the time of the initial surgery. Position may be maintained best in the position of function. The latter may be described as that of the hand cupped over a ball that fills the palm of the hand, the thumb lying in a horizontal line with the forearm, and the wrist dorsiflexed forty-five degrees. The splint described by Mason and Allen is excellent in maintaining this position. Occasionally fractures of the fingers may require skeletal traction to maintain position by the use of a Kirschner wire through the distal phalanx. This may be secured by a plaster cast, splinting the forearm and hand proximal to the palmar crease and extending to the tip of the injured finger in a semiflexed position. The uninjured fingers are left free for active motion. Traction may be maintained until callus is sufficient, usually twelve to fourteen days. A finger kept in traction in the position of extension for more than eighteen days is likely to be stiffened permanently. Fractures of the metacarpals that are not maintained in position by the usual unpadded plaster cast may be secured by skeletal traction similar to that described for the finger, using a small Kirschner wire through the shaft of the proximal phalanx. Also, internal fixation may be accomplished, when necessary, by drilling Kirschner wires in a transverse fashion through the reduced fragments and one or two adjacent metacarpals. No plaster cast is needed for about three and one-half weeks and those of the metacarpals approximately five to six weeks.

AMPUTATIONS

The main objective in the care of amputations of the finger is the conservation of as much of the phalanx as possible and the restoration of function. Amputations produced by sharp-edged instruments, in which the stump is left smooth and with little trauma, may be closed by either pedicle graft from the palm, or free graft taken from the forearm.

If the stump is torn and lacerated and the bone of the phalanx fragmented, it will be necessary to cut away the spicules of bones to effect a smooth surface for closure. Every effort is made to conserve the skin of the digit, particularly the palmar flap, as the latter provides adequate soft tissue padding necessary for a useful stump. It is preferable to sacrifice length of the digit in order to obtain satisfactory tissue padding for closure. The nerves are sectioned sharply and allowed to retract proximal to the stump to prevent a painful neuroma. No attempt should be made to suture extensor to flexor tendons, as limitation of motion usually results.

NERVES

Primary suture of nerves should be done whenever conditions permit. This requires careful isolation, sharp sectioning of the severed ends, accurate end-to-end approximation, using small instruments, six-0 black silk or No. 60 cotton, and gentle atraumatic technic. Early repair of nerves should be accomplished to prevent atrophy and to promote better blood supply to the part. Good results can be anticipated when done early, as all nerves of the hand are either sensory or motor. This is quite fortunate as sensation and motion are the most important functions of the hand.

INCISIONS

The retrieving of retracted proximal ends of the severed tendons is always a difficult task and may require extension of the wound, or additional incisions proximal to the wound. The incisions should be made only in a field free of infection and contamination. They should follow the creases of the skin in the wrist and palm, and along the ulnar and radial border if made in the forearm. In the finger the incision should be made along the dorsolateral borders just dorsal to the inter-phalangeal crease to avoid the neuro-vascular bundle.

REPAIR OF FLEXOR TENDONS

Once the retracted proximal end of the tendon is identified a suture is passed through the severed end and with the aid of a tendon leader returned to the original site of the injury. Here it may be anchored in the wound by passing a straight needle through the tendon and adjacent soft tissue until repair is carried out.

Suture of the tendons may be performed with good results using either No. 60 cotton or six-0 black silk on an atraumatic needle. Mattress sutures placed on either side of the tendon, according to Kochs' method or the double right angle stitch, is all that is necessary as splinting of the hand in the semiflexed position of relaxation will usually relieve tension on the sutured tendon. In cases where tension appears too great for simple suturing, the anchoring of the proximal end of the tendon with No. 35 stainless steel wire, as advocated by Bunnell, will give good results, the latter being removed by pull-out wire in approximately three weeks. At this time the splint is removed and active motion is begun.

The primary repair of severed tendons are best carried out in the unsheathed portions, that is, between the distal palmar crease and the base of the hand. Here, if both sublimus and profundus tendons are severed both may be repaired under favorable conditions, and a small tab of tissue placed between the two suture lines to minimize adhesions.

Because of the extensive gliding surface within the tendon sheaths encountered in the area beyond the distal palmar crease, this area is often referred to as, "No Man's Land." Severed tendons in this area are rarely sutured by the more experienced surgeons, feeling that the best results follow tendon transplant in the reparative stage, whereby the suture line is placed well outside the sheath. Some few surgeons, however, feel that under ideal conditions of clean wounds, seen within two to three hours, the profundus tendon may be repaired within the sheathed area if the sublimus tendon is sacrificed to avoid adhesions between the two. The proximal end of the sublimus may be withdrawn from the sheathed area, cut short, and sutured to the repaired profundus tendon outside the sheath. Following suture of the tendon within the sheath the latter should be excised about the suture line and split above and below approximately 1 cm. to allow ample room for postoperative edema of the tendon, as well as to prevent restriction of the gliding parts by minimizing adhesions to the sheaths.

There is one type of injury which presents not only the most complex problems in treatment, but frequently results in the greatest loss in function. This is the crushing injury to the hand. Here the skin is torn, the muscles macerated, the blood vessels ruptured, tendons and nerves lacerated, and the bones often fragmented. Intense pain and muscle spasm follow, accompanied by marked edema of all tissues. The out-pouring tissue fluid, which follows the rupture of millions of cells, congeals about all structures, interferes with circulation, and finally forms a thick brawny, wood-like, induration with resulting fibrosis about the joints, tendons, and bones with the end stage of immobility.

It is only occasionally that primary repair of tendons and nerves is attempted and then only those that have not been macerated by the crushing force. The closure of open wounds, where conditions permit, is the first objective in the treatment of these crushing injuries. Thorough debridement should be done and closure effected, either by primary suture of the skin or by split graft. Fractures should be aligned and reduced, and where possible stabilized by the use of intra-medullary Kirschner wires instead of plaster casts. This allows maximum motion of joints, a factor most important toward minimizing stiffness, ankylosis, and functional disability. Splinting should be done in the position of function, which has already been described. Firm compression dressings and elevation in a perpendicular manner will aid in controlling edema and pain. During the stage of healing early motion is begun by carefully removing the splint daily and allowing free and full range of motion of all joints to the point of pain. A malaligned fracture is preferable to an ankylosed joint or a frozen tendon.

Recent reports of the use of ACTH toward minimizing edema in crushing injuries of the hand are encouraging, but not conclusive. Additional reports will be followed with considerable anticipation.

POST-OPERATIVE CARE

Postoperative care of all hand injuries consists of antibiotics, elevation of the hand and arm, and close attention to wound healing. Dressings which usually are changed on the fifth or sixth day to inspect the wound, and re-apply fresh compression, may be done earlier if infection is suspected or may be delayed until the seventh or eighth day in the clean cases, at which time superficial skin sutures may be removed. Splinting should be disturbed as little as possible in cases of nerve and tendon repair for at least three weeks, at the end of which time it is safe to begin active motion of the injured part. The splint should be so arranged that active motion of the uninjured parts may be accomplished from the first few days following repair. This serves to encourage better functional restoration.

While nothing especially new is presented in this paper, it is hoped that attention may have been focused on the more important fundamentals in the care of hand injuries and that the principles of good surgery emphasized and clarified in the minds of the general practitioner and general surgeon, who most usually see these cases first.

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DISCUSSION

Dr. E. Dabney Hurt (Corinth)—This excellent presentation of the basic fundamentals of surgery of the hand brings forcibly to our attention the influence of Halsted, Kanavel, Bunnell, Koch, Mason and many others in this particular field of surgery. It has been stated that "Success in treating a severe hand injury requires more skill and exacting judgment than an elective abdominal operation."[1] Knowledge of the anatomy and physiology of the hand and forearm, plus sound surgical principles, is a prime requisite. Proficiency in numerous techniques, although desirable, is secondary. A procedure which results in maximum function is the one of choice.

Emphasis should be placed on some of the more common problems encountered in acute injuries of the hand and fingers. Traumatic amputations, either partial or complete, occur daily in industry, on the farm, or at home with power tools such as power lawn mowers, electric fans, etc. As emergency cases they are rushed to the nearest office, clinic or out-patient department where in many instances operation is done immediately without much planning or regard for having the necessary equipment at hand to do a carefully planned procedure. The result is usually poor both from the standpoint of morbidity and function. Finger length is sacrificed or a secondary procedure is made necessary, where one operation carefully planned would suffice. Many complete amputations at the distal end of the fingers show excellent functional results when time is taken to apply a small skin graft. In contrast to optional amputations it is not necessary to sacrifice length in order to obtain a palmar flap. Lateral and even dorsal flaps give good functional results. Incomplete amputations of one finger with marked soft tissue and bone injury such as occur in crushing injuries are usually best treated by completing the amputation when the blood supply is questionable. In most instances it is necessary that the nerve and artery on one side be intact as well as one flexor tendon. Where more than one finger is involved the added risk of gangrene may be more readily accepted in proportion to the number involved. The thumb should never be sacrificed where there is even the barest possibility that it can be retained.

Avulsion of the skin is worthy of mention. This occurs frequently and varies in type and degree from partial to complete separation. In complete separation when the skin has been preserved and is not too severely damaged, it is cleansed thoroughly and then prepared in the same manner as a full thickness skin graft. This is done by sharp dissection removing all subcutaneous tissue down into the dermal layer. It can then be sutured in place and in most instances will survive.

Partial avulsion of the skin in some ways can be more complicated than complete avulsion. The chief factors to be considered are:

1. Degree of skin injury
2. Blood supply of the flap
3. The length-width ratio of the flap
4. Location of injury as to type of subcutaneous tissue.

If the skin is not too badly injured, its blood supply proximal, the site of injury the thin tissue of the dorsum of the hand, and the length of the flap not excessive in relation to its width; replacement by suture usually gives a good result. When these optimal conditions are lacking, the problem becomes more complex in proportion to the presence of the less favorable conditions of these factors. The skin may be so badly damaged that replacement is impractical. In such case the portion that can be salvaged is replaced and the remaining defect covered by skin graft. The blood supply of an otherwise viable flap may be inadequate because of the flap being attached in its distal portion only. When this is evident, it is more practical to detach the flap and replace it after preparing it as a full thickness graft. Nichols[2] states that the length of the flap should not exceed approximately twice its width for successful replacement.

Gangrene of replaced tissue is much more likely to occur in areas where the subcutaneous fat is abundant as in the palmar surface of the fingers and the thenar and hypothenar eminences of the hand. We have all had the experience, after suturing in place partial avulsions, of finding a gangrenous flap either partial or complete at the first dressing necessitating a second operation. By careful evaluation at the time of initial surgery, this can at least, in part, be prevented.

In fact, as Dr. Davis has so capably stressed, the application of sound surgical principles and judgment is the sine qua non in handling injuries of the hand.

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Myasthenia Gravis

CASE REPORT OF SUCCESSFULLY TREATED MYASTHENIC CRISIS

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Myasthenia gravis is characterized by fatigue and exhaustion of the muscular system, especially that of the face and neck. It occurs at all ages from the neonatal to the geriatric period but is more often found in younger women. A transitory neonatal myasthenia is occasionally seen in infants born of mothers with myasthenia gravis. Although immediate treatment with neostigmine is of the utmost importance, the disease is apparently self-limited with the symptoms disappearing within three weeks. Spontaneous remissions not infrequently occur in myasthenia gravis making evaluation of therapy somewhat difficult.

The diagnosis is readily made when one is cognizant of the entity for a small dose of neostigmine will dramatically overcome the muscular weakness and achieve an amazing temporary response.

Results of Thymectomy: For the past fifty years it has been suggested that there is a definite relationship between the thymus and myasthenia gravis. Although it is difficult to correlate changes in the thymus with the clinical state of myasthenia, 75 to 80 per cent of cases show some change in the thymus: thymoma, hyperplasia or retarded involution.

Pursuing the suggestion of Blalock, a number of reports appeared stressing the value of thymectomy in selected cases of myasthenia gravis. Eaton and Clagett[2] in 1950 compared 72 cases of myasthenia gravis treated surgically with 142 control cases, concluding "the study fails to support the thesis that thymectomy influences beneficially the course of myasthenia gravis." This conclusion has been vigorously challenged. Recently Clagett[1] indicated that further clinical study has caused him to reverse his opinion for he now feels that thymectomy is indicated in all cases of myasthenia gravis.

Keynes[3] has repeatedly pointed out that better results surgically are obtained in patients that do not have a thymic tumor. Most surgeons, however, urge the removal of thymic tumors when at all feasible because of the malignant potential of such tumors. Ross[4] analyzed the results of 100 consecutive cases operated on by Keynes, omitting all patients with thymoma. Seven patients had died, one of myasthenia, leaving 93 for evaluation. The following results were obtained:

Complete remission—41 (44%)
Greatly improved but requiring some neostigmine—26 (21%)
Somewhat improved, requiring less neostigmine—20 (21%)
No improvement—6 (6%)

Thus, an excellent result from thymectomy in myasthenia cases not presenting a thymic tumor was obtained in 67 patients or nearly 70 per cent of the group. Although American reports are not quite as impressive as this, they do indicate that appreciable and even marked benefits can be expected from thymectomy in most cases of myasthenia gravis.

Studies indicate that the best results from thymectomy are to be expected in females, in patients under 30, in disease of short duration, and in those not presenting a thymic tumor.

The most severe myasthenia crises are characterized by inability to maintain pulmonary ventilation in spite of large doses of neostigmine, owing to the weakness of the respiratory muscles, partial obstruction of the airway from weakness of laryngeal and pharyngeal musculature and atelectasis with resulting pneumonia from inability to evacuate the tracheobronchial tree effectively.

The following case report is that of a severe myasthenic crisis successfully treated:

Mrs. T. N., BH 54-14651, a 36-year-old white Grav. V Para V, was admitted to the Baptist Hospital under the American Cancer Society program on December 17, 1954. She gave a history of having aching and swelling of the joints, particularly those of the upper extremities, seven weeks previously. This was diagnosed as arthritis by a local physician and therapy with cortisone instituted. After ten days of therapy she presented swelling of the face and edema of the hands and feet, which subsided when cortisone was withdrawn.

Soon thereafter she presented an acute episode of respiratory distress when a piece of hard candy "seemed to go down the wrong way." She was admitted as an emergency to another hospital and treated with oxygen and numerous naso-pharyngeal catheter aspirations to remove thick, viscid secretions. At this time her local physician,* noting that

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*Dr. Louie Wilkins, whose diagnostic alertness should be commended.

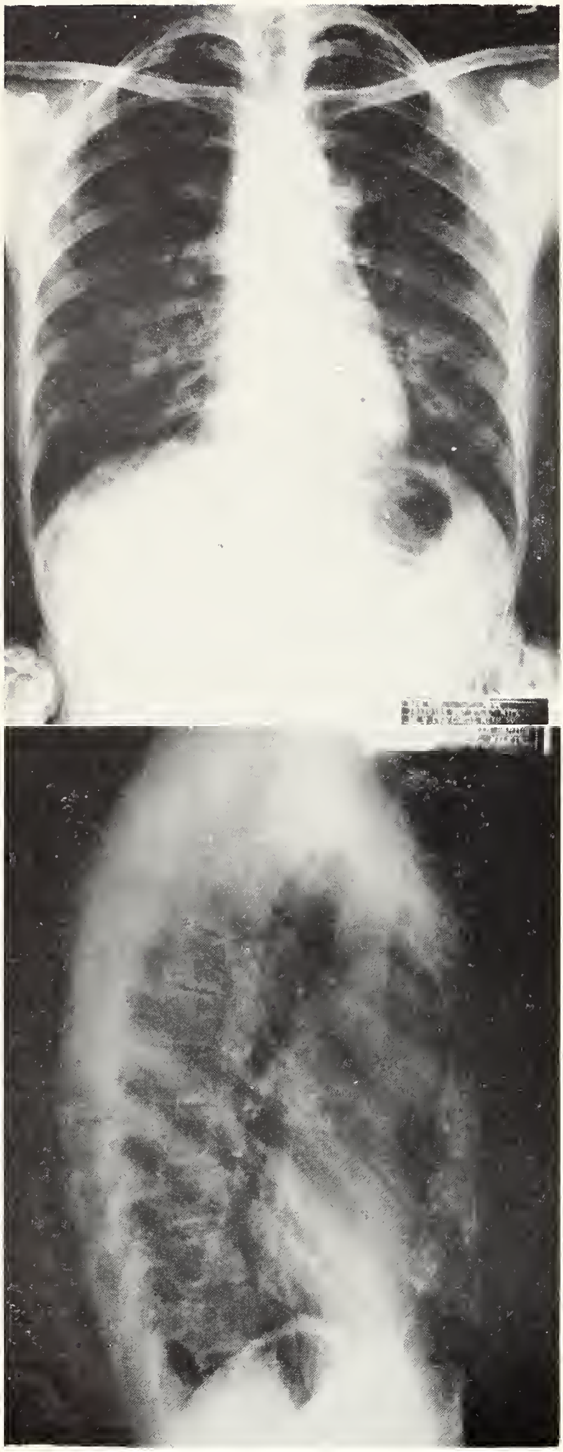

Fig. 1. PA and lateral views of chest showing well-circumscribed tumor located in anterior mediastinum.

she was having difficulty in swallowing and effectively evacuating pharyngeal secretions, gave her prostigmin hypodermically with dramatic but temporary improvement. She was started on oral prostigmin 30 mgm. q.i.d. and progressed satisfactorily for the next few days. An x-ray of the chest disclosed an anterior mediastinal tumor. (Fig. 1) When admitted to the hospital, she stated that she was having weakness "about her lips and hands, particularly on the left." On the day following admission she aspirated a small bit of egg during breakfast and presented marked respiratory difficulty, although the prostigmin dosage had been increased to four mgm. hypodermically every hour! Emergency tracheotomy was effected (Dr. Ralph Sneed) which facilitated aspiration of thick, tenacious tracheobronchial secretions and made ventilatory exchange easier. The patient improved during the next 24 hours but remained in critical condition despite *four mgm. of prostigmin every hour by injection.*

Although all observers heartily agreed that her plight was a desperate one, it was felt that the mediastinal tumor (thought to be a thymoma) should be removed, hoping to overcome the myasthenic crisis. Under endotracheal anesthesia (Dr. Tom Marland), the left chest was hurriedly opened through the third intercostal space, dividing the costal cartilages parasternally. After ligating the internal mammary vessels, the pleura was opened, disclosing a yellowish-tan, lobulated, anterior mediastinal tumor bulging into the left pleural space. The overlying pleura was incised and a lobulated thymic tumor, about the size of a large orange, was readily enucleated. (Fig. 2) Following removal of the tumor a remnant of the thymus gland located on the anterior surface of the pericardium and extending superiorily was noted. This was removed after ligating a superior vascular pedicle. The chest was closed in layers with an intercostal catheter for water-trap drainage. Total operating time had been one hour and thirty minutes.

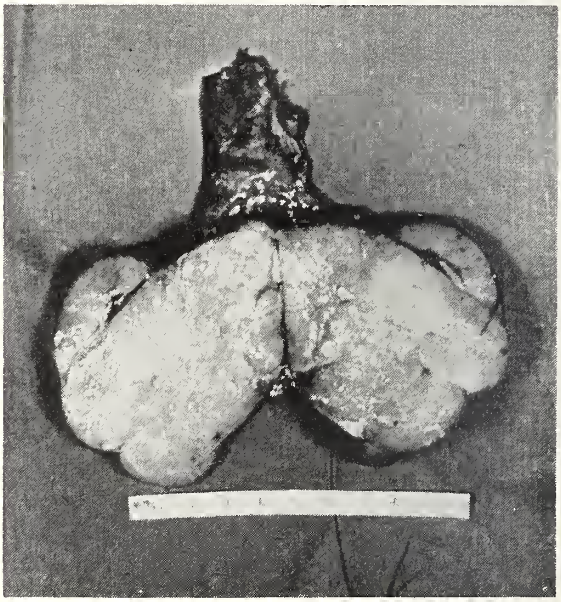

Fig. 2. Photograph of anterior mediastinal thymoma. (Opened)

PATHOLOGY: (Dr. Kenneth Heard)

The specimen consisted of a remnant of thymic tissue and a well-encapsulated thymic tumor, light tan in color, measuring 8.5 x 6 x 6.5 x 3 cms. Microscopically, the tumor was a highly cellular one, presenting solid sheets of cells. (Fig. 3) Two chief types of cells were noted: 1) spindle-shaped cells

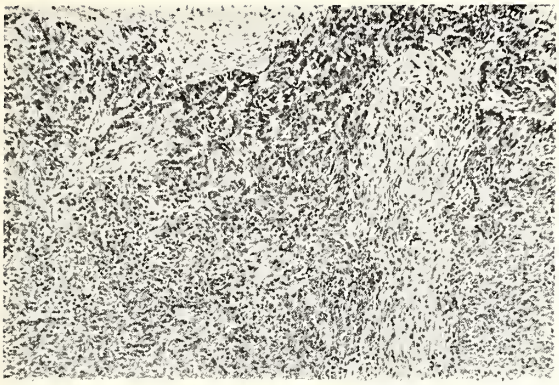

Fig. 3. Photomicrograph showing cellular architecture of the thymoma. This was considered to be benign, although histologically it is often impossible to distinguish a benign from a malignant thymoma.

arranged in haphazard groups, 2) cells, microscopically compatible with lymphocytes, diffusely infiltrating the entire tumor. Impression: thymoma.

Immediately after the surgery the patient was placed in an iron lung, until she was able to ventilate effectively. Prostigmin in hypodermic dosage of four mgm. every hour was continued in the immediate postoperative period. At no time did the patient present evidence of prostigmin overdosage (diarrhea, abdominal pain, etc.).

The main postoperative problem was in effectively removing the thick tracheobronchial secretions. Despite the tracheotomy and constant nursing attention, the patient developed massive atelectasis of the left lung on the second postoperative day. Bronchoscopy removed a thick plug from the left main stem bronchus. Alevaire was then started and seemed to help greatly in decreasing the viscosity of the tracheobronchial secretions and allowing their effective aspiration.

Thereafter, the patient improved rapidly. It was possible to decrease the prostigmin dosage until at the time of discharge from the hospital on January 17, 1955, she was effectively controlled on oral prostigmin 15 mgm. t.i.d.

The patient has returned to full active duty and the maintenance dose of oral prostigmin four months after surgery is 30 mgm. per 24 hours. She is again pregnant but is progressing in a normal manner.

DISCUSSION

The above case of severe myasthenic crisis in a young woman is presented to emphasize the dramatic remission that may be effected by thymectomy. Although spontaneous remissions in myasthenia do unquestionably occur, it seems very unlikely that this exciting response was due simply to good fortune. Preliminary tarcheotomy was of the utmost value in restoring adequate ventilation. Not only did it allow effective removal of the thick, tenacious tracheobronchial secretions, but it lessened the respiratory work by short-circuiting the 100 to 150 cc. of "dead space" air in the naso and oropharynx, that must be moved with each respiration. Alevaire was of distinct value in thinning the bronchial secretions and aiding in their evacuation.

CONCLUSION

A severe crisis of myasthenia gravis in which death seemed eminent, successfully treated with emergency tracheotomy and early thymectomy, is reported.

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Among patients admitted to general hospitals, the prevalence of definite and suspected tuberculosis and of probably active tuberculosis is twice as high as among individuals x-rayed in mass surveys. Thus 14 (1.4 per cent) of every 1,000 patients show on admission x-ray the presence of definite or suspected tuberculosis as against seven for every 1,000 in mass surveys. Two of every 1,000 x-rayed on admission to general hospitals for mass surveys. N.Y.S. Dept. of Health, Div. of TB Control, 1952 Annual Report

Experiences to Date with the Salk Vaccine*

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In the first two decades of this century the infectious nature and person-to-person spread of poliomyelitis was established. Then its causative agent—a virus—was demonstrated. Thereafter came the discovery of this infectious agent in secretions of the gastro-intestinal tract. With the discovery of ability of the monkey to transmit the disease and to develop immunity to poliomyelitis another forward step was taken. This was followed by the successful adapting of the Lansing strain virus to cotton rats and mice. All these were great landmarks in polio research. But the peculiar affinity of the poliomyelitis virus for specific tissues delayed further real progress in the conquering and control of this disease until Enders, in 1949, announced a method of growing the polio virus on monkey kidney tissue in the test tube. From then on forward strides have been so rapid that now commercial supplies of a vaccine to prevent paralytic polio—called the Salk vaccine—are at a premium and the public is demanding rigid government controls to forestall "black market" operations. No other prophylactic vaccine has ever received such a dubious honor.

The development of the Salk vaccine has been popularly compared with the smallpox vaccine. Yet neither their nature nor method of application are comparable. The successful Salk vaccine uses a dead virus for its antigenic agent. The smallpox vaccine is an attenuated virus modified by multiple passages through the cow. With the Salk vaccine antibody formation is not due to experiencing of the disease itself. With the smallpox vaccine the individual actually develops vaccinia in the course of developing protection against smallpox. It is interesting to note that, though Jenner deserves all the credit for introduction of cowpox as a preventive measure against smallpox, he was not the first to use this method. Smillie states that in 1713 Salger called attention to the protective power of cowpox against smallpox and in 1744 Benjamin Jester, a farmer, vaccinated his wife and children with the cowpox virus. In 1765 Fenster reported the protective value of this vaccine to the Medical Society of London. Sixteen years later the first mass immunization occurred when Dr. Nash administered the cowpox vaccine to "more than 50 people" in 1781. But Jenner used logical scientific method to prove what his predecessors surmised. He inoculated smallpox vaccine into an eight-year-old boy who had a cowpox vaccination with good "take". No illness resulted. Then he further inoculated ten other individuals who gave previous history of cowpox and proved them also resistant to smallpox. The results of his observations were presented officially to his colleagues and to the world in 1796 by a paper to the Royal Society and, in 1798, by publishing a book (at his expense). How different from the official presentation of the Salk vaccine! What a difference in the speed of application of knowledge and vaccination to the world population!

There is a point of similarity between this first of vaccines and today's polio vaccine. Jenner's vaccination program was endangered when, according to his words, a medical gentleman "who for many years inoculated in this neighborhood, frequently preserved the variolous matter intended for his use on a piece of lint or cotton which, in its fluid state, was put into a vial, corked, and conveyed into a warm pocket; a situation certainly favorable for speedily producing putrefaction in it. In this state (not infrequently after it had been taken several days from the pustules) it was inserted into the arms of his patients and brought on inflammation of the incised parts, swellings of the axillary glands, fever, and sometimes eruptions. But what was this disease? Certainly not the smallpox; for the matter, having from putrefaction lost or suffered a derangement in its specific properties, was no longer capable of producing that malady, those who had been inoculated in this manner being as much subject to the contagion of the smallpox as if they had never been under the influence of this artificial disease; and many, unfortunately, fell victims to it who thought themselves in perfect security". This instance may be compared to the set-back in our Salk vaccination program due to the unfortunate use of two inadequately prepared lots of vaccine.

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*Presented at the quarterly meeting of the Northeast Mississippi Medical Society, June 14, 1955, Tishomingo, Miss.

Immunity

Most human beings acquire immunity to poliomyelitis through subclinical infections or nonparalytic attacks. The frankly paralytic case which all dread occurs only occasionally. From previous experience and studies scientists have determined that in epidemic areas five out of every 100 individuals in the attacked population will develop some paralysis. And for every frankly paralytic case there are approximately 100 individuals who are infected but not diagnosed as such. Serologic studies prove there is systemic response to this polio infection regardless of the clinical course. More significantly, this response seems to be of a lasting nature. Paul and Riordan have shown high levels of serum antibody for the Lansing virus in the Point Barrow, Alaska, Eskimos twenty years after known exposure—this with no further known exposures in the intervening period. Salk's studies previous to the field trials showed extensive disease experience within the Pittsburgh group of volunteers studied. The percentage of individuals with antibody levels increased in direct proportion to increase in age. Of course the picture changes with the part of the country under consideration. In Cairo, Egypt, where socio-economic conditions are poor with crowding and poor sanitation preeminent, a study by Melnick and Paul conducted in 1950 showed a shift to the earlier age group. High levels of protective antibodies were found as early as two years of age. Often children were born with neutralizing antibodies against poliomyelitis. These gradually decreased until six months of age and then immediately began to rise so that more than 50 per cent of the infants had antibodies for Type II virus at two years of age and 75 per cent at four years of age. In the sparsely populated and isolated Alaska group studied the shift was to the later ages—that is no appreciable percentage of individuals had evidence of antibodies in the under twenty age group for Type II. For Types I and II no appreciable percentage increase was noted until the 30-40 year age group.

From his studies Dr. Salk was able to state that the destruction of virus infectivity with retention of antigenicity and good immunologic response were possible. This is governed by certain definable and unalterable laws. Dr. Salk's evidence for this thought is as follows:

1. Destruction of virus infectivity with formaldehyde occurs as a first order chemical process, that is, rate of destruction is directly dependent on time of exposure to 1:4000 formalin at pH of virus. Thus the prediction, rather precisely, of the time required to render each preparation free of living virus is possible.

2. Chemical treatment required for rendering virus non-viable does not reduce markedly the antigenic properties of this virus unless overtreatment is extended for a period equal to more than five times that required to reduce infectivity beyond measurable point. Thus the margin of safety for both destruction of infectivity and retention of antigenicity is reassuring. Salk states that the vaccine prepared in this way is of such stability that no special precautions are required for its maintenance.

The variable response of the different strains of virus to the same treatment accounts for the poor and only moderately good antigenic response exhibited in some lots. Dr. Salk states now that some strains of virus seem to produce antibody more easily than others and one type of virus may call forth antibodies also active against others. This may mean a change in the composition of the vaccine. Another factor effecting antigenicity of the various strains was the destructive effect of merthiolate. This effect accelerated at elevated temperatures. The problem is now solved by the addition of versene (a product of Eli Lilly Company research) which counteracts the destructive tendencies of the merthiolate without destroying its preservative properties.

How long does the immunity last? The nature of the polio virus antigen is such that the killed polio virus not only incites antibody formation but leaves a lasting impression upon the antibody-forming cell. Polio virus is a relatively potent antigen and much less virus is needed to produce antigenic effect than previously presumed. Dosage interval is also an essential factor. Doses given 2 and 5 weeks after the first dose add little to the antibody level. A secondary dose should be given between four and seven months after the primary set of inoculations for high level titres. Important is the concept of "heightened reactivity." The first exposure to antigen (artificial or natural) causes a state in the body which responds to second invasion with more rapid and extensive antibody formation. This concept of "heightened reactivity" thus applied is new and most significant. It was noted that when a booster was given even as long as two years after the first immunization, the antibody level jumped within six to nine days to a height often greater than that from natural infection.

Sufficient time has not elapsed to know just how persistent vaccination immunity is. But the trend is encouraging. It is evident that high level of antibodies persist five months after (or one year from primary vaccination). Even encouraging is the gradually diminishing slope of antibody decline noted in contrast to the sharp decline of antibody titre in convalescence from natural infection.

When applying the well-known adage, "There is no immunity like convalescent immunity" is a well known adage to the smallpox vaccine we know it is not true. Here we have a modified live virus vaccine with which there is no guarantee of life-long immunity. Neither does it apply to the flu or cold vaccines. Ultimately, the limitation of each virus must be determined individually. In the case of Salk's dead virus vaccine only time will confirm or deny the picture which, from his studies and the field trial evaluation, looks so promising.

Field Trial Evaluation

Evaluating efficacy of immunizing agents is done through animal tests, tests on human volunteers, field trials, and through use by the public over a period of time. The first two methods are the function of the laboratory producing the immunizing agent. The third, the field trial is the creation of the statistically-minded. It involves a characteristic segment of the population, much cooperation and real teamwork. The object is measurement of incidence of naturally occurring disease in two significantly large matched groups. The last and surest method measures results after general use on a long-term basis. Most of our present immunizing agents gained acceptance through this last method. But because polio is such a dreaded disease, communications today are swift, and we are a nation of impatient creatures anxious to take advantage of the best that science offers, the value of the Salk vaccine could not await the test of time. This put a special and serious responsibility on the conduct of the 1954 field trial of Salk vaccine and on its evaluation.

The Francis evaluation report on the field trials is most revealing and worth studying in detail by all physicians. Only thus can one appreciate the problems involved in such a study and marvel that any significant results could be obtained at all. When over 150,000 individuals perform a study on 455,574 children in 44 states under sufficiently uniform conditions of procedure to permti integration of data it would be truly miraculous if some problems did not arise.

First, there was the need for selection of a significant and representative study population for unbiased results. Early in the project it was recognized that the use of second grades with first and third as controls introduced a factor of bias. But some states were already committed to this method. Consequently, the placebo method, a rigid alternating of vaccine and placebo where neither administrator nor patient knew what was received, could be applied only to part of the study area. Thus there were two different types of study groups—the Observed Area and the Placebo Area. Results were significantly different in each.

In the Observed Area 221,998 children received vaccination—56 developed polio—an attack rate of 25:100,000 (38 paralyzed and 18 not paralyzed). This compares with 391 cases or an attack rate of 54:100,000 in the control population.

In the Placebo Area 200,745 received the vaccine—57 developed polio—an attack rate of 28:100,000. In 201,229 children receiving placebo, 142 cases of polio occurred—a 71:100,000 attack rate (115 paralyzed and 27 not paralyzed). Among 338,778 not inoculated children in this area there were 157 cases of polio with attack rate of 46:100,000.

Estimates of effectiveness of the Salk vaccine vary in both study areas and so must be interpreted with caution. For instance, in the Placebo Study Area the percentage effectiveness against all paralytic polio was 72; in the Observed Area it was 62 per cent. The percentage effectiveness against bulbo-spinal paralysis (laboratory confirmed) was 91 as compared to 60 per cent in the Observed Area and for the laboratory confirmed spinal paralysis, 82 and 83 per cent respectively. "From these data it is not possible to select a single value giving numerical expression in a complete sense to the effectiveness of the vaccine as a total experience. Using results of the observed study area the vaccine must be considered 60—80 per cent effective against paralytic polio—60 per cent against Type I and 70-80 per cent against Type II and III." But there is more reason to place reliance on the Placebo Study figues where the study population was identical for placebo and vaccine and the item of bias was nullified by lack of knowledge in the field as to which child received what. Thus it is suggested that the vaccine was effective 80-90 per cent against paralytic polio and 60-70 per cent effective against disease caused by Type I virus; 90 per cent or more effective against Type II and III.

Reactions

Limitations in obtaining complete and accurate reports of all reactions in addition to physician variability in diagnosis made evaluation of reactions somewhat difficult. In studying the possible reactions occurring from vaccination the extent and reasons for absenteeism in Pittsburgh and New York schools were carefully noted. In the non-inoculated population the extent of absenteeism was slightly, though significantly greater than in the vaccinated group. It was interesting to note that illnesses labeled "allergy" occurred more frequently in the placebo group. For instance "rash" was reported in eight vaccinated and ten placebo cases, "asthma or hayfever" in two vaccinated and four placebo cases, "poison ivy" in six vaccinated and ten placebo cases, etc. Identical figures for all three groups occur for other conditions reported.

Because the Salk preparation contains kidney protein causing many to be concerned about its safety, Dr. Salk particularly specified "that batches of filtered tissue culture fluid with infectious titers of 10^{-5} or greater would be considered suitable for further processing only if they contained less than 0.35 mgm/ml. of total nitrogen, 0.20 mgm/ml. of amino nitrogen and 0.02 mgm/ml. of amino nitrogen."

Though data are meager, no evidence concerning kidney damage or Rh sensitization was noted. Search was particularly directed on 100 vaccinated individuals for development of complement-fixing antibodies against monkey kidney. In only one case was there a suggestion that such antibodies may have developed and this was questionable. The hazard of using monkey kidney in Rh negative individuals was answered by Dr. Albert Milzer who reported "we were unable to detect Rh and Hr antibodies or sensitization in 32 Rh negative children in our series of immunized children."

Since many have questioned what danger is involved in using the vaccine in individuals with known allergies, including sensitivity to penicillin, a special study on 16 adult allergic patients was done by Dr. Siegal of the Adult Allergy Clinic of New York. One of the patients had a definite persistent penicillin sensitivity by subcutaneous and intracutaneous tests. Sixty-three control subjects were used—all showing a negative immediate reaction to intracutaneous tests. Three showed a definite, although slight, positive delayed 24-hour skin reaction to 0.1 ml. of the vaccine. Dr. Siegal concludes the vaccine should offer no hazard "either to persons allergic to penicillin or as a source of newly acquired penicillin sensitization."

Thus, from data received, the conclusion that there was a significant lack of untoward reactions to the Salk vaccine seems justified.

Mississippi

In our state the incidence of polio is less than it has been for the past three years. Through May only 37 cases have been reported. However during these past three years the incidence had been unusually high. Last year only 3,521 second grade children were vaccinated. The proportion of vaccinated to unvaccinated was too small to justify any conclusions. This year 107,900 children received their first injection. Not enough time has lapsed to determine what influence this group may have on polio occurrence in Mississippi. In both of these groups not a child developed serious reaction or was proved to have developed polio from the vaccine injection. (There was one child who was diagnosed non-paralytic polio in this group. His illness occurred within the possible incubation period, but laboratory studies have not confirmed the diagnosis as yet.)

In Lowndes County 1,928 first and second grade children (83 per cent of the eligible white and 63 per cent of the eligible colored) received 1 cc. IM of the Salk vaccine prepared by Eli Lilly. Only three children were reported as having a possible systemic reaction. All proved to have concurrent bacterial infection. Onset of illness was respectively, 1 day, 3 days and 6 days after Salk vaccine injection. No laboratory studies were necessary because of obvious clinical response to medical care. No development of paralysis, and no real evidence that this was reaction to the vaccine itself occurred.

Dr. A. L. Gray, director of the Division of Preventable Disease Control, Mississippi State Board of Health, stated: "I am convinced that the Salk vaccine is effective enough practically to eliminate paralytic polio when broadly applied. Further active immunization is the only possible approach to control." I am in complete accord with Dr. Gray's statement, but whether the active immunization will be by dead or live virus, no one at this time can tell.

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ETIOLOGICAL FACTORS IN TRANSVERSE PRESENTATION OF FETUS. POSSIBILITY OF SHORT CORD AS ETIOLOGICAL FACTOR

Following presentation of a case at the Northeast Mississippi Hospital staff meeting of transverse lie with short umbilical cord, Dr. Hare, Department of Pathology, University of Mississippi, was asked if there is a known relationship between the two. Since then, Mr. John Giordano, student instructor in the pathology department, and Dr. Hare pursued this problem somewhat and found that there is no specific association between the two, although one author mentions that a cord complication may be the cause of a malposition. Summarized data from various articles covering etiological factors in the transverse presentation of a fetus follow:

Greenhill, Dehee, *Principles and Practice of Obstetrics*, 10th Edition, Philadelphia, W. B. Saunders Co., 1951.

P. 611—Transverse—Possible causes may be contracted pelvis or total placenta praevia.

P. 551—No mention of relationship between short cord and transverse presentation. It may delay second stage of labor by not allowing head to come down properly.

Beck, Alfred C., *Obstetrical Practice*, 5th Edition, The Williams and Wilkins Co., 1951.

P. 499—Transverse presentation associated with:

1. Placenta implanted in either upper or lower pole of uterus with resultant shortening of vertical axis of uterus.
2. Contracted pelvis.
3. Multiple pregnancy, lax uterus and abdominal walls.
4. Prematurity.
5. Dead fetus.
6. Excess of amniotic fluid.

Eastman, Nicholaon J., *Williams Obstetrics*, 10th Edition, Appleton-Century-Crafts, Inc., 1951.

P. 812—Etiology of Transverse

1. Abnormal relaxation of abdominal walls due to great multiparity (ten times more frequent in patients with a parity of four or more than it is in primigravidae.)
2. Pelvic contraction
3. Placenta Praevia

Gardiner, J. P., "Delayed Labor Caused by a Shortened or Short Umbilical Cord." J.A.M.A., 1932, p. 98, 598.

Author states that he has found that a cord complication is frequently the cause of a malposition and lists conditions in which a cord complication must be considered. They are breech presentation, a *transverse position*, the head in either fossa, or a high floating head. The author gives no case reports or references in which transverse was actually related to short cord.

In previous paper, Gardiner, J. P., "Umbilical Cord, Normal Length; Length in Cord Complications: Etiology and Frequency of Coiling," Surg. Gynec. and Obst., 34: 252, February 1922. The author lists data on the cords of various lengths but does not mention any relationship between transverse presentation and short cords.

Stevenson, C. S., "Transverse or Oblique Presentation of the Fetus in the Last Ten Weeks of Pregnancy: Its Causes, General Nature and Treatment." *American Journal Obst. and Gynec.*, 58: 432, September, 1949.

This paper places emphasis on fundal implantation of placenta and placenta praevia as etiological factor in transverse presentation, 92.3 per cent of a series of 52 cases of transverse or oblique presentation of fetus in last ten weeks of pregnancy being associated with such placental implantations.

Other factors encountered in this series were contracted pelvis (cephalopelvic disproportion), hydramnios, fetal death in utero, and relaxation of abdominal wall. No mention of short cord was made in this paper.

Johnson, C. M.: "Transverse Presentation of the Fetus: An Analysis of 196 Consecutive Cases." Am. J. Obst. and Gynec., 57: 765, April, 1949. No mention of short cord vs. transverse presentation:

186 *Cases*	*No.*
Multiparity (3 or more children	82
Unknown (26 of which were multiparas with no record of number of babies)	54

(Continued on page 51)

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

NEW PROGRESS

The Clarksdale and Six Counties Medical Society held a timely and interesting meeting on June 15, on public relations. Dr. Guy T. Vise of Meridian discussed medical economics and his paper is very fine. Hospital relations was the subject of Dr. Oscar E. Ringold of Cleveland, whose paper was practical and informative and indicated much thought and work. The third paper was read by our executive secretary, Rowland B. Kennedy, who discussed the public relations programs of the Mississippi State Medical Association and the American Medical Association. He defined what public relations means and gave fine suggestions. This meeting marks a milestone in Mississippi Medicine. No man lives to himself and no man can successfully practice medicine solely by prescribing the latest drugs or using the latest surgical methods.

The medical profession is rapidly becoming a part of every phase of human life. Every doctor has a duty to organized medicine, but he is also duty-bound to function as an all-round citizen.

It is gratifying to see the American Medical Association taking a part in all phases of life for the common good. This is bound to result in great good. As our state medical associations follow suit and cooperate, medicine will have entered a new cycle.

The challenge to the medical profession is to build a citizenship adequate to meet any problem that may arise in human society. Carrying the best in medicine to all our people is a responsibility of the entire medical unit made up of the doctor, the nurse, the pharmacist, the dentist, the hospital and the research and medical laboratories. This unit has the responsibility that was carried by the family doctor. Each profession making up this unit needs to feel its personal responsibility to the patient and the funds at hand should be shared on a fair basis.

We congratulate Clarksdale and the essayists on this program and we hope to give the readers of the journal these papers at an early date.

CHARTS VS. SERVICE

Change is inevitable. Formerly the doctor put in most of his time studying his patient, finding out the cause of his illness and applying the remedy in keeping with the individual. Now the patient is a case number to so many who share in the medical care, a doctor can manage little treatment that relates to psychosomatic make up.

The charts and blanks must be made and kept up and then if there is time to treat the patient and give him a little personal attention, it seems secondary. Charts are all right, but the big things on which a hospital should be graded are the type of service given to the sick patient and the results obtained.

There was a time when a test for malaria was mandatory for every patient who came to the doctor, but now this is not imperative. There was a time when a Wassermann was imperative, or was thought to be, but now the doctor can well screen his cases and have a very safe idea when a Wassermann should be made. Economy and common sense are as necessary in operating hospitals as any business.

The grade of ministry to the sick which a hospital performs should still measure its success, rather than the loads of paper work turned out.

DR. HUGHES HONORED

Dr. T. G. Hughes of Clarksdale, is the most recent member to come into the Fifty-Year Club. The celebration, held at the Baptist Church in Clarksdale, his church, on Sunday night, June 5, was a wonderful tribute to a man who had served his people long and well. The presence of the doctors was evidence of the high esteem in which they hold Dr. Hughes. The pastor launched the program with a fine tribute. Dr. LeRoy Wilkins reviewed the life and the work of Dr. Hughes in his unique and inspirational manner. It was good to be there and to present him the fifty-year pin and the fifty-year certificate on behalf of the State Medical Association.

These celebrations in the church are no doubt excellent public relations. It helps the people to understand the profession and the doctors their folks. Medicine needs religion. It can help medicine to solve social and economic problems.

MEDICAL SCHOOL OPENING

Mississippi's nine-million-dollar medical center located in the capital city of Jackson took its first deep breath on July 1, 1955, when the 350-bed teaching hospital opened its doors and transferred 34 patients from the Jackson Charity Hospital under its roof. Thirty-two students are expected in the junior class when the medical school opens in September. Eventually capacity enrollment of 300 medical students is expected.

The hospital and the teaching medical school are connected in one building and are superbly well located on the old state mental hospital grounds. For more than fifty years the two-year school has made a fine record, located at University, Mississippi. The medical school is still a part of the University of Mississippi.

With the per capita distribution of funds for the indigent sick, a hospital affiliation can be effected which will make it easy for all the indigent sick to be available for the teaching hospital. One half the beds in the teaching hospital are to be available for indigent patients, we believe.

There has been some difference of opinion on the medical teaching procedure, but we are very sure every doctor and every citizen will unite in one pulling and pushing effort to give our state one of the best medical schools in the nation. And we believe this school will soon be outstanding in carrying medical service to all the people in the state. Jackson is a fast growing city located near the center of a state that has been attracting the attention of the rest of the nation in many ways.

News and Comment

DR. DWIGHT H. MURRAY AMA PRESIDENT-ELECT

On June 9 Dr. Dwight Harrison Murray, a general practitioner of Napa, Calif., was chosen to be president-elect of the American Medical Association by the House of Delegates at the 104th Annual Meeting in Atlantic City. Dr. Murray was born in Springfield, Ind., May 16, 1888. He graduated from the Indiana University School of Medicine in 1917 and went into the Navy at once. He did postgraduate work at the U. S. Naval Medical School and the University of Pennsylvania and in 1920 was licensed in California. He has been engaged in medical practice with special attention to internal medicine since 1922 and is chief of the medical staff at Parks Victory Memorial Hospital in Napa. He has served as a member of the house of delegates of the California Medical Association since 1938, and since 1940 he has been chairman of its committee on public policy and legislation. In 1944 and 1945 he was a delegate from the California Medical Association to the American Medical Association House of Delegates.

AMA MEETING

Nearly 30,000 persons attended the 104th annual session of the American Medical Association, Atlantic City, June 6-10. Registration of physicians totaled nearly 12,000, scarcely 300 less than the record registration at San Francisco last year. Physicians lauded the excellence of the scientific programs which continued through five full days of varied activities. Headquarters for scientific sessions was the mammoth Atlantic City convention auditorium.

More than 5,000 persons attended the Tuesday evening inauguration of Dr. Elmer Hess, Erie, Pa., as president. Sharing the rostrum with Dr.

Hess was the world-renowned Protestant minister, Dr. Norman Vincent Peale, New York. The theme of the inauguration ceremony was "Medicine's Proclamation of Faith." The program was broadcasted coast-to-coast over 346 stations of the ABC radio network.

Busy sessions of the House of Delegates considered eighty-two resolutions and a heavy agenda of reports from committees and councils. Subjects debated were osteopathy, medical ethics, medical practices, intern training, hospital accreditation and the Salk vaccine program.

A proposal by AMA past president John W. Cline to remove the label of cultism from osteopathy and lend assistance to osteopathic education was rejected by the House of Delegates. Action was taken to amend the *Principles of Medical Ethics* to permit dispensing of appliances and drugs " . . . without exploitation of the patient."

Officers elected were Drs. Dwight H. Murry, California, president-elect; Millard D. Hill, North Carolina, vice-president; E. Vincent Askey, California, speaker of the house; and Louis M. Orr, Florida, vice speaker.

Nineteen Mississippi physicians attended the meeting: Drs. Lamar Bailey, Kosciusko; S. H. Caffey, Philadelphia; J. P. Culpepper, Jr., Hattiesburg; C. D. Dawson, Jackson; O. G. Eubanks, Crystal Springs; H. L. Gee, Jackson; Raymond F. Grenfell, Jackson; Stanley A. Hill, Corinth; Martin E. Hinman, Seminary; and Donald T. Imrie, Vicksburg.

Drs. Thaddeus A. Labecki, Jackson; John F. Lucas, Greenwood; Veronica Pennington, Jackson; Lee R. Reid, Jackson; James J. Sharon, Jackson; Robert E. Schwartz, Hattiesburg; George E. Twente, Jackson; Clyde A. Watkins, Sanatorium; and B. Z. Welch, Biloxi.

The 1955 clinical or interim session will be held at Boston and the 105th Annual Meeting, June 1956, is scheduled for Chicago.

DR. PARKER RELINQUISHES PLACE ON COUNCIL

Dr. E. C. Parker, Gulfport, resigned as a member of the Council of the Mississippi State Medical Association during late May, according to Dr. Lamar Bailey, president of the association. Dr. Parker had served on the Council continuously since 1948, representing the Ninth District.

He has served as chairman of that body during the full part of his tenure and was president of the association in 1934-35.

Dr. Bailey said that " . . . in deference to Dr. Parker's request, I have reluctantly accepted his resignation. His years of service to the association will be an inspiration to every physician and there is no way of measuring the benefits which his untiring efforts have given medicine in Mississippi."

Dr. Bailey announced that he has appointed Dr. Cummings H. McCall, Gulfport, to serve the unexpired term as Ninth District Councilor. The term will continue through the annual meeting in 1957.

NEW SPECIALTY GROUPS

Two new specialty societies were organized in Mississippi last month, holding their initial meetings concurrently with the 87th Annual Meeting, Biloxi. These are the Mississippi Society of Anesthesiologists and the Mississippi Chapter, American College of Chest Physicians.

The anesthesiologists named as their 1955-56 officers Drs. Curtis Caine, Jackson, president; H. L. Gee, Jackson, vice-president; Thomas J. Marland, Jackson, secretary-treasurer; and Henry N. Westhafer, Vicksburg, president-elect.

Fifteen of the eighteen A.C.C.P. Fellows in Mississippi attended the organizational meeting of the chest physicians. Officers named were Drs. Lee R. Reid, president; H. K. Stauss, vice-president; and Helen Bernfield, secretary; all of Jackson.

Each society has announced tentative plans for 1956 meetings concurrent with the Centennial Annual Meeting of the association.

(Continued from page 48)

Prematurity	27
Multiple Pregnancy	8
Cephalopelvic disproportion	8
Placenta praevia	4
Bicornuate uterus, previous uterine suspension polyhydramnios, hydrocephalus, and monstrosity	6

Harris, B. A., and Epperson, J. W. W., "An Analysis of 131 Cases of Transverse Presentation," Am. J. Obstet. and Gynec., 59: 1105, May, 1950.

No mention of short cord vs. transverse presentation.

Study of 90 cases of transverse presentation shows:

Multiparity (3 or more babies)	54.9%
(6 or more babies)	33.3%
Contracted Inlet	21.9%
Pelvic neoplasma	12.1%
Excessive size of fetus	12.1%
Placenta praevia	7.6%
Previous suspension of uterus	4.3%
Malposition of uterus	2.2%
Arcuate uterus	1.1%

Conclusion: From the above references it can be seen that there are certain factors or conditions commonly associated with transverse presentations but no direct evidence is presented for a short cord as an etiological factor though it may possibly cause such a presentation.

DEATHS

DR. W. A. JOHNS

Alcorn County is no longer served by the physician who, in 1874, saw the Corinth bank robbed by the James gang.

Dr. William A. Johns died June 7 at the home of his daughter, Mrs. W. C. Stevenson. He was 86 and had been in ill health for several months.

Making his first calls on horseback, Dr. Johns began practicing in Corinth in 1895. He was born in Corinth, May 5, 1869, son of the late Reuben A. and Maggie Borroum Johns. After he was graduated from Corinth High School he attended the Webb School in Bell Buckle, Tenn., and Vanderbilt University at Nashville. He was graduated from Memphis Hospital Medical College in 1894 and began his medical career in Nuevo Leon, Mexico.

After being a general practitioner for about 12 years, Dr. Johns did postgraduate work in Chicago and returned as an eye, ear, nose and throat specialist. He practiced until November, 1954.

Dr. Johns, a 32nd degree Scottish Rite Mason, had served as past Master of Corinth Lodge 116, past High Priest of Corinth Royal Arch chapter 76, past Master of Barney Trice Council 48, past Commander of Mary Savery Commandery 14, past Grand High Priest of the Grand Chapter of Mississippi, past Grand Master of the Grand Council of Mississippi, past Grand Commander of the Grand Commandery of Mississippi, past president of Order of High Priesthood of Mississippi, past president of Order of Silver Trowel of Mississippi and senior past Grand High Priest of the Grand Chapter. Dr. Johns was an elder in the First Presbyterian Church.

Services were held at the First Presbyterian Church. The Rev. T. G. Henry of the Filmore Street Presbyterian Church and George Patterson, minister of Waldron Street Christian Church, officiating.

Besides his daughter, he leaves a son, W. A. Johns, Jr., of Corinth, three grandchildren and one great-grandchild.

DR. H. K. CURRY

Dr. Hugh Kimbrell Curry, Sr., physician here since 1935, died of a heart ailment May 19, at Oschner's Clinic in New Orleans where he had been a patient about three weeks. He was 43.

A lifelong Webster Countian, Dr. Curry moved here from Mantee as a child. He attended the University of Mississippi at Oxford and was graduated from the University of Tennessee College of Medicine in Memphis.

He began practicing medicine in 1935 and a short time later opened Curry Clinic. He was a member of the Mississippi Medical Association and the American Medical Association.

Dr. Curry was a veteran of World War II. He was a member of the Eupora Rotary Club and First Baptist Church.

His father, Dr. W. H. Curry, retired two years ago after practicing medicine in Webster County since 1911. Dr. Curry was the brother of Jim Curry, Webster County sheriff, and Robert Curry, superintendent of the Eupora Water Department.

He also leaves his wife, Mrs. Inez Harpole Curry; two sons, Hugh Kimbrell Curry, Jr., and William Lee Curry; his mother, Mrs. W. H. Curry, and two sisters, Mrs. Ann Love of Key West, Fla., and Mrs. William Simpson of Silver Springs, Md.

DR. S. K. GORE

Services for Dr. Samuel Kirkham Gore, veteran physician who died at the Houston Hospital after a brief illness June 12, were held from the Houston First Baptist Church.

Dr. Gore, who was 69, was a native of Webster County. He had practiced medicine for 45 years.

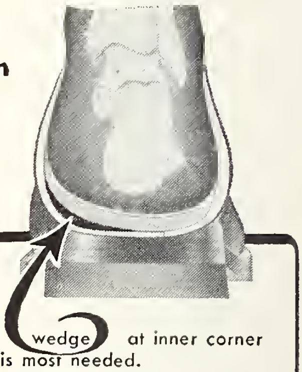
Dr. Gore served as honorary colonel on the staffs of Governors Thomas Bailey and Fielding Wright. He was an active member of the American Medical Association and the Northeast Mississippi Medical Association.

He was employed as a surgeon for the GM and O Railroad since it was built in Chickasaw County and was a physician for Chickasaw County. He was a Mason.

Surviving are his wife, Mrs. Cora Scarbrough Gore, two daughters, Mrs. T. Carter Patch of Houston and Mrs. C. J. Chandler of Jackson; a son, Dr. Thomas M. Gore of Houston; four brothers, J. B. Gore and Bingham Gore of Hoenlinden, John Gore of Bay Springs and W. V. Gore of Birmingham, Ala., and four sisters, Mrs. Ruben Hitt of Hoenlinden, Mrs. Baldwyn Griffin of Eupora, Mrs. Ivan Wofford of Hoenlinden, and Mrs. Fronia Barker of Vero Beach, Fla.

Announcement

L. L. McDougal, Jr., M.D., and Charles P. Tharp, M.D., announce their Association for the practice of pediatrics. Corner Church and Main streets, Tupelo, Mississippi.



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REPORT OF THE ADVISORY COMMITTEE TO THE MEDICAL AUXILIARY

A. STREET, M.D.
Vicksburg, Miss.

You Auxiliary members have your own program promoting measures aimed at improving community and national health, and you participate in the programs of other organizations which have more or less related objectives, and some entirely unrelated.

I would think that in all these activities in which you participate, nothing is more important than the opportunity you have to promote good public relations. However, in order for any of us to accomplish much along this line, we must of necessity be acquainted with some of the pertinent facts. We not infrequently hear statements about doctors which we think are incorrect but if we are called upon to controvert them we must know what we are talking about.

For example, you might be at a civic meeting of some sort and a member might confront you with a question as this: "What's the matter with your doctors? Why are they opposed to free medical service for the dependent families of men in the military service?" If you happen to know the answer it is very simple. The accusation is false. The official attitude of the AMA is that if Congress wants to underwrite the cost of medical and hospital service for military dependents, we have no objection. However, we do not think it is fair to impose the burden of free medical service for civilian dependents disproportionately onto the doctor by calling him into military service for the purpose of rendering such care. He can do it just as well or better and cheaper in his own community. We are in favor of the military calling into service all the doctors necessary for the care of the military forces, but we do not think it fair to draft doctors for civilian service when the service can be had on a community level. If the government wants to pay the dependent's bill, it is perfectly all right with us.

I have mentioned just one example. There are numerous other instances which may come up in your discussions and you will always find yourselves at a disadvantage unless you have enough information to distinguish between careless and even vicious misrepresentation and the honest truth. This information cannot be acquired without some effort on your part. The *Journal of the American Medical Association* and the Auxiliary *Bulletin* contain articles explaining the attitude of the medical profession regarding various proposals, clearly stating the reasons why we think they are good or bad. I want to emphasize how urgently important it is for all of us to get the facts by reading these articles and reports. Also, our Secretary, Mr. Rowland Kennedy, publishes a newsletter summarizing national and local developments relating to health and medicine. This goes to every member and I am sure it is available to you.

When we hold our local medical society meeting, it is conducted as an educational workshop. Most of the time, it is devoted to scientific discussion and sometimes to business and economic affairs. We profit by exchanging ideas and experiences of our own, and reviewing those reported by others. I assume that when you hold your local auxiliary meetings you also conduct a workshop. As a part of the program, your committee on public relations or any designated member or members could be assigned the duty of reporting on current proposals, and reports from Washington and elsewhere having a bearing on medicine and health. Presentation and discussion could include the attitude of the AMA towards such matters, giving special attention to whether or not the AMA has made a decision for or against, including the reasons supporting the attitude taken. After having discussed these affairs among yourselves at your workshop meetings, you will probably have formed a sound opinion of your own. Then if the same subject matter should come up at a meeting of the Women's Cabinet, the PTA, or any other meeting you might happen to be attending, you will be much more at ease in presenting the facts, the position you take, and the reasons supporting your stand.

AUXILIARY TO SMA

The Southern Medical Association, for nearly half a century, has become renowned for its good fellowship and spirit of confraternity among physicians composing its membership—giving the Southern a claim to a friendliness, and *esprit de corps,* which is unique among medical organizations.

The Woman's Auxiliary to the Southern Medical Association was organized in New Orleans, La., November 25, 1924. It is comprised of the wives of doctors who are members of the Southern Medical Association. There are no dues in the Auxiliary; wives automatically become members of the Auxiliary when their husbands join the Associations whose dues are $10.00 per year. These dues include the very fine *Southern Medical Journal* ,published monthly; and there is *no registration fee at convention.*

The Auxiliary meets just once a year—at the same time and place as the Association.

Southern has three projects: Doctor's Day; Research and Romance of Medicine; Jane Todd Crawford Memorial Student Loan Fund.

Why is Doctor's Day celebrated? In 1935, March 30 was designated as "Doctor's Day" by the Southern Auxiliary to honor members of the medical profession, both living and dead, this date being selected because in 1842 Dr. Crawford Long of Georgia first successfully used anesthesia. In 1949 the red carnation was adopted as the official flower for Doctor's Day. The day is observed by memorial flowers placed in churches, at special dinners, and as contributions to hospitals and special health projects.

What is Research and Romance of Medicine? This project was adopted in 1930 to preserve the medical history of the South with special emphasis on compilation of biographies of doctors; histories of medical societies and auxiliaries and their projects; nurses and others who have contributed to the progress of medicine.

The Jane Todd Crawford Memorial Student Loan Fund was created in 1928. The Woman's Auxiliary to the Southern Medical Association has named a committee to find ways and means of activating this loan fund.

The Southern Medical Association and the Southern Medical Auxiliary will hold their convention in Houston, Texas, November 14-17, 1955. Headquarters for women's activities will be at the Rice Hotel. Make your reservations now. Everything is bigger and better in Texas. The hostess auxiliary is going all out for a delightful time for its guests.

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Surgery of the Pancreas*

Jonathan E. Rhoads, M.D., John R. Senior,M.D.,
Charles K. Kirby, M.D., and Donald V.Rhoads, M.D.†
Philadelphia, Pa.

The pancreas was for a long time referred to as the hermit organ of the abdomen because so few surgeons found it expedient to operate upon it. Surrounded as it is by other organs and intertwined as it is with their blood supply, it is no wonder that the early abdominal surgeons found it wise to leave it alone or, at the most, to drain pancreatic abscesses. Further developments in pre- and postoperative care, better understanding of pancreatic physiology and increasing experience have led to a considerable development in pancreatic surgery, but surgical mortality is still high for some lesions. Table I shows the comparative incidence of the better known pancreatic lesions as they were encountered at our hospital over a 17-year period.

TABLE I
SURGICAL LESIONS OF THE PANCREAS
Hospital of the University of Pennsylvania, 1932-1949

Diagnosis	No. of Cases	Incidence in Entire Series
Carcinoma of the pancreas	55	37.6
Acute edematous pancreatitis	38	26.0
Acute necrotizing or acute hemorrhagic pancreatitis	16	11.0
Abscess of the pancreas	1	.7
Chronic pancreatitis	11	7.5
Pancreatic cysts and pseudocysts	8	5.1
Cystadenoma	1	.7
Pancreatic calculi	4	2.7
Chronic relapsing pancreatitis	4	2.7
Tumors of the islands of Langerhans	6	4.0
Ectopic pancreatic tissue	3	2.0
Total	147	100.0

Undoubtedly, the most devastating disease of the pancreas is carcinoma. When this arises in the head of the pancreas, it is at times indistinguishable from carcinomas arising from the papilla of Vater, the lower end of the common duct or the duodenum itself, and the practice of referring to this group of malignancies as pancreaticoduodenal carcinomas has much to recommend it. A few of the ampullary carcinomas have been removed successfully by local excision.

However, it remained for Whipple to devise a method for radical excision of the head of the pancreas. He accomplished this first in two stages, and later in one stage. Various modifications of the one-stage method are now generally employed. Although Whipple was successful in carrying out this procedure in the sense that his patients recovered from operation, he appears not to have been successful in obtaining any five-year survivals in cases of carcinoma, and, indeed, five-year survivals were so few that for a time most physicians took the point of view that this was purely a form of palliative surgery. There are now, however, at least 17 five-year survivals in the literature and, undoubtedly others, of which we know one, which has not been written up. Only a minority of these are classified as true carcinoma of the head of the pancreas, but the distinctions between the various types of pancreaticoduodenal carcinoma are, as I have indicated, somewhat uncertain.

Common sense tells us that the chance of cure in these lesions is not great. There is, however, a chance of cure in the favorable ones, and the amount of palliation is often quite encouraging.

Certainly, the operation must still be reserved for the minority of the unfortunate sufferers from pancreatic carcinoma. In a recent computation, we found that it had been carried out in less than 20 per cent of patients with pancreatic carcinoma in our own hospital in 1953 and 1954. Unquestionably, this reflects a conservative attitude on the part of some of the surgeons who feel that the high operative mortality of the Whipple operation is hardly justified by the difference in results to be expected between it and a simple sidetracking procedure such as a cholecystojejunostomy.

As in all types of internal cancer, what we need most is a better method of early diagnosis. It is with this in mind that Dr. Harold Zintel[1] recently reviewed the incidence of various symptoms in a series of patients with carcinoma of the pancreas. He found that the earliest symptom which the patient experienced was most often pain, but that the symptom which most often brought the patient to the hospital was jaundice. The concept of painless jaundice as characteristic of these lesions is misleading, because it only occurs in a minority of cases. When it does occur, however, it is highly suggestive.

Unfortunately, carcinoma developing in the body and tail of the pancreas seems to have very little chance of being discovered in time for effective removal. Noteworthy among the early symptoms attributed to carcinoma of the body of the pancreas is peripheral thrombosis, but this also occurs in other obscure malignancies and, even when it leads to a suspicion of malignancy, it will hardly help in localization of the trouble.

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*Presented at the sixty-sixth annual meeting of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 8-11, 1955.

† From the Hospital of the University of Pennsylvania and the Harrison Department of Surgical Research, Schools of Medicine, University of Pennsylvania.

Cysts and Pseudocysts. Cysts of the pancreas are relatively common and should be completely excised whenever possible. When, due to their extent or the involvement of other organs, as in the case of pseudocysts, this is not feasible from a technical standpoint, internal drainage is considered preferable to external drainage. Drainage through the posterior wall of the stomach has at times been successful, though drainage to a defunctionalized loop of jejunum is usually preferable. If the loop is 30 inches long, one is not likely to get very much regurgitation of alimentary contents into the cyst.

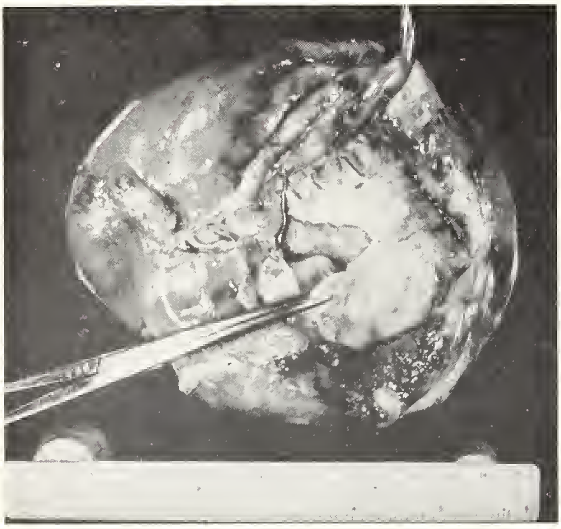

Figure 1. *Benign Cystadenoma of the pancreas showing large cystic space.*

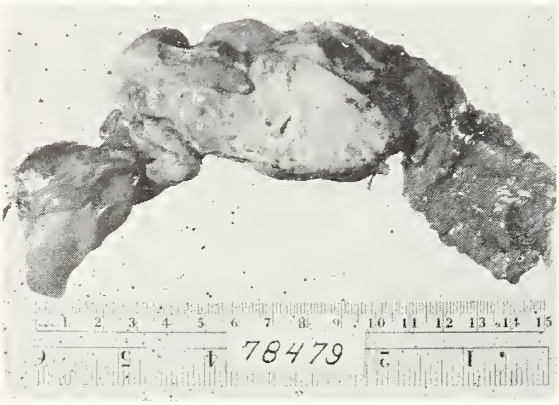

Figure 2. *Benign papillary cystadenoma of the pancreas showing a tumor of almost solid consistency.*

Cystadenomas. Solid or partly solid benign tumors of the pancreas are infrequent. Up until five years ago, only 27 of these tumors had been described in the surgical literature. However, it is doubtful if they are nearly as rare as this figure would suggest, as we have encountered four of them in our hospital in the last six years. (Figures 1 and 2). They can usually be removed though the procedure may be difficult. Whether they have any premalignant potential cannot be stated definitely, but certainly it is not recognized as very great. Cystadenocarcinomas have been reported, but whether they represent a malignant change in a benign tumor is not known. Even the benign cystadenomas, however, increase in size and frequently give rise to pain and some disturbances of digestion.

Islet Cell Lesions. In contrast to the tumors of the acinar portions of the gland which are apt to be malignant, the tumors of the cells of the islets of Langerhans are usually benign. When Howard, Moss and Rhoads[2] reviewed the literature on these lesions a few years ago, they found records of 398 tumors of the islets of Langerhans, among which there were only 37 cases of carcinoma of the islet cells of Langerhans.

As is the case to a lesser extent with some other endocrine tumors, the distinction between the benign and malignant forms of tumor of the islets of Langerhans is difficult to make histologically, because the benign tumors may show a good many of the characteristics which we generally attribute to malignancy in other sites, such as blood vessel invasion. Actually, most pathologists are now unwilling to call an islet cell tumor malignant unless there is demonstrated metastasis. Perhaps it is partly because of this difficulty that there are to our knowledge no recognized cases of five-year survival after operation upon carcinoma of the islets of Langerhans. There is, however, a great preponderance of splendid results in cases of benign tumors which produce hyperinsulinism. Here, the problem is first one of diagnosis, as a great many of these people present the most bizarre symptomatology.

Even with a diagnosis resting firmly on repeated measurements of fasting blood sugar at levels of 50 mg. or below, symptoms of insulin shock relieved by carbohydrate and failure of a low carbohydrate diet to diminish the attacks, one may still encounter serious difficulties at operation. Many of these tumors are small. Full mobilization of the body, tail and head of the pancreas is necessary so that the gland may be deliberately and thoroughly palpated between the fingers and thumb or even between the fingers of the surgeon's two hands. This is readily accomplished for the body and tail if the gastrocolic omentum is widely opened and the peritoneum along the lower border of the pancreas is incised. For the head, the Kocher maneuver with downward reflexion of the hepatic flexure of the colon and incision of the lateral peritoneal reflexion of the duodenum usually suffices.

In Howard's collected series[3], it should be noted that the incidence of multiple tumors was 12.6 per cent. In the 118 cases in which no tumor was found on palpation within the pancreas, resection of the body and tail of the gland-so-called subtotal pancreatectomy—was carried out in 68 instances. Study of the excised tissue disclosed that a tumor was present though not palpated in 12 cases, and its removal was followed by relief of symptoms. In the remaining 56 cases, clinical relief was obtained in 26 or 46.4 per cent. There remained a residuum of cases in which the tumor was not found in which the patient did not obtain relief. Some of these have subsequently died of symptoms suggestive of hyperinsulinism, and it may well be that the tumor simply was missed.

It should be remembered that there are a few benign tumors of the islet cells that are nonfunctioning. Some of these may attain a great size. One which an internist watched for a period of nine years, believing it to be spleen, finally became approximately as large as a football. At operation, it was a highly vascular tumor, resembling in many ways a retroperitoneal sarcoma. It was so intimately attached to the aorta and great vessels that complete removal was not accomplished. However, the patient was relieved of his discomfort and has continued well for the four years since operation.

Pancreatitis. This is the most frequent of all the lesions of the pancreas. One hopes that this can be treated medically and, therefore, can be omitted from any discussion of the surgical lesions of the pancreas, but this hope has not quite been realized completely. It is now generally agreed that if the diagnosis of pancreatitis can be established by non-operative means, operation should be withheld during the early acute stage of the illness. A majority of such patients will get well and never require operation; a minority will not get well, but will develop pancreatic abscesses or what might be termed pancreatic gangrene, which will require drainage of pus and necrotic material at a later date by surgical means.

Kirby and his associates[4] have recently gone over this material and have shown that, whereas prior to 1946 most of the patients dying at the Hospital of the University of Pennsylvania of pancreatitis succumbed within two to five days of the onset of illness; and only two died after the first week; these early deaths are now rare. The great majority of those who have died since 1946 have lived two, three or more weeks, finally to succumb from the ravages of pancreatic gangrene. Erosion of major arteries with fatal hemorrhage played a dominant role in more than half of these deaths since 1946. Antibiotics are often credited with changing the picture, along with increasingly effective use of intravenous fluids, suction and general supportive measures.

There exists a considerable difference of opinion regarding a group of borderline cases. This group of patients may be characterized by having acute upper abdominal symptoms and signs and having elevation of the serum amylase. Symptoms and signs may be so acute as to raise the question of perforated ulcer. One school of thought follows the concept that operation is so harmful in pancreatitis that one can take a reasonable risk of failing to operate on a perforated ulcer so long as there is no free air in the abdomen and provided that continuous suction drainage of the stomach is employed. The other school of thought takes the point of view that a limited exploration is probably not a very important factor in the death rate from pancreatitis, and that when there is real doubt as to whether the patient has a perforated ulcer or some serious surgical lesion requiring operation, it is better to look and see.

No doubt, the proper ground is a middle one, and we find in going over our figures that a fair number of patients with acute pancreatitis have actually had an exploratory laparotomy early to rule out other diagnoses. It has been our custom in such cases to do a cholecystostomy and lay drains down to the pancreas without disturbing it. The mortality figures before and after 1946 are shown in Table II. Actually, we do not have a really satisfactory way of handling patients with acute pancreatitis. Fortunately, most of them have mild enough attacks, so that they survive without difficulty. It is equally true, however, that many of those who do survive have subsequent attacks. Among seven patients followed by Dr. John Howard who had second attacks, two succumbed during their subsequent attacks, suggesting that they may have developed gangrene of the pancreatic tissue the second time, whereas they may have had merely edematous pancreatitis at the first attack.

TABLE II
ACUTE PANCREATITIS
Hospital of the University of Pennsylvania
Mortality Before and After 1946
Edematous Necrotizing Total Postoperative

	Edematous	Necrotizing	Total	Postoperative
1922-46	11.9	76.2	28.8	———
1946-53	4.6	33.3	13.8	57.1

Chronic Relapsing Pancreatitis. Chronic relapsing pancreatitis is a subacute or remittent form of pancreatitis, accompanied usually by moderate rather than severe pain, with periodic rises in pancreatic enzymes in the blood often followed by low levels late in the disease, and with a gradual tendency toward calcification of the pancreas and diabetes mellitus. Various digestive disturbances also follow as the result of a decrease of the enzyme content of the external excretion of the pancreas.

Many forms of treatment have been recommended. Rienhoff and Baker[5] treated a case with vagotomy, sympathectomy and splanchnicectomy. Bronson Ray[6] and many others have treated them with sympathectomy and splanchnicectomy alone. Doubillet and Mulholland[7] have claimed very good results following division of the sphincter of Oddi. At the Mayo Clinic, two such patients were subjected to total pancreatectomy[8]. Anastomosis of the duct of Wirsung to the jejunum[9] and choledochoduodenostomy have also been advocated.

It is a difficult field in which to make a wise choice. We treated one case with total pancreatectomy, and he has done remarkably well despite many subsequent difficulties, such as a fracture of the acetabulum. We have treated a majority of the patients with bilateral sympathectomy with about 50 per cent relief of symptoms. We have done a number of sphincterotomies transduodenally, but the results have been inconstant. At present, we favor abdominal exploration and a trial of sphincterotomy. If this does not give relief, we favor a bilateral splanchnicectomy and resection of the sympathetic chain from D 11 to L 2. We would not withhold total pancreatectomy as a last resort if severe symptoms persisted after less dangerous means of therapy had been tried and if the general condition of the patient permitted.

SUMMARY

The common and some of the less common lesions of the pancreas which may require surgical treatment have been reviewed. Cystadenoma, which has been regarded as quite rare, is being encountered with increasing frequency.

Carcinoma of the head of the pancreas, which for so long seemed to be incurable, has been relieved by operation with five-year survival in a small group of cases reported by widely scattered surgical groups.

Especially good results have followed resection of islet cell adenomas with hyperinsulinism, and follow-up periods now extend up to over sixteen years.

Acute pancreatitis is treated medically rather than surgically in the acute stages except when diagnosis is seriously in doubt. Mortality has been reduced but is still high when necrosis and hemorrhage supervene. Early death which used to be frequent is now rare. Most of the patients dying of the disease, since the advent of penicillin, have died after the first two weeks. Severe hemorrhage was the commonest feature of these late deaths in the cases observed by the authors.

Chronic relapsing pancreatitis still presents a complicated problem in therapy, but most cases respond either to sphincterotomy or to sympathectomy and splanchnicectomy—only the exceptional case requiring total pancreatectomy.

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Recent Advances in Diagnosis of Rheumatic Heart Disease in Children*

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The role of the pediatrician is to prevent disease whenever possible, to diagnose as accurately as possible disease when it exists, to treat it as well as possible and to give both parents and older children such explanation of diseases when seen as to prevent as much psychic trauma as possible. In rheumatic fever this means the treatment of streptococcus infection when it occurs, the prevention of recurrent streptococcus infection and adequate treatment of acute and chronic rheumatic fever and rheumatic heart disease.

Numerous studies have demonstrated the occurrence of epidemics of rheumatic fever following outbreaks of scarlet fever, streptococcus sore throat and milkborne epidemic of sore throats. The various antibodies: antistreptolysin, antihyaluronidase and antistreptokinase which are known to rise in the blood following infection with group A hemolytic streptococcus have all been found by various observers to be high in the majority of cases of acute rheumatic fever. The continuous administration of either sulfonamide or penicillin to children who have suffered an attack of rheumatic fever has been well shown to prevent almost all streptococcus infections and when such infections were prevented recurrent attacks of rheumatic fever were also prevented. Although hemolytic streptococci can be isolated from the oropharynx by routine culture in only about 80 per cent of untreated patients one week after the onset of an acute streptococcus infection and in only about 50 per cent 5-6 weeks after the infection it has been shown by Rammelkamp[1] and others that by using special bacteriologic techniques hemolytic streptococci can be isolated from all such cases at least six weeks after the onset of the infection. It seems likely therefore that most if not all rheumatic subjects harbor the infection at the onset of an acute attack. Rheumatic patients frequently exhibit an exaggerated response to streptococcal antigens as compared to patients who do not develop this complication and it seems that this excessive response probably has something to do with the development of rheumatic fever. Nevertheless, when the streptococcic infection is treated as late as nine days after infection high titers of antibodies develop, but if the streptococcus is eliminated by adequate penicillin therapy the patient seldom develops rheumatic fever. If, on the other hand, the streptococcic infection is treated with sulfonamides although immediate suppurative complications are less, as a matter of fact in a control study by Catanzaro[2] and others, less than those treated with penicillin, and the immediate antibody titre is less. The antibody titre rises promptly after the cessation of therapy, rheumatic fever often occurs and the streptococcus can often be cultured from the nasopharynx. This is the difference between the response to a bactericidal drug and a bacteriostatic one and seems to prove that the early rise in antibody titre is not what causes rheumatic fever but the continued presence of the streptococcus in the body over a long period of time during convalescence from the acute streptococcus infection.

All of the many studies done in the past few years, some of which I have mentioned, make it now quite certain that if we are to prevent the development of rheumatic fever we must prevent infection with the Beta hemolytic streptococcus or eradicate the infection soon after it has occurred.

How are we to recognize Beta hemolytic streptococcus infection? If older children come to you in the early days of infection this is usually not too difficult in at least 50 per cent of the cases. The child usually has considerable fever. The throat is very sore and it hurts to swallow, he often vomits. The tonsils or pharynx are usually markedly injected and at least after the first or second day, there is often exudate. The peritonsillar glands are usually swollen and almost always tender. Petechiae may be present on the palate. When a scarlatiniform rash is present on the body, of course that makes the diagnosis almost one hundred per cent sure. Cough, on the other hand, is usually good evidence against a streptococcus infection and for a viral infection. It has now become very important to diagnose a

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Beta hemolytic streptococcus infection properly since, as we shall hear later, proper therapy early will eliminate suppurative complications and even after the ninth day of disease prevent rheumatic fever. It seems to me the situation is very much like the necessity of diagnosing diphtheria when I started practice. We had no immunizations against diphtheria and it was a common and highly fatal infection in childhood. We did fortunately have good therapy which if given early would prevent the fatal complications of the disease. We were therefore all taught to examine every child's throat carefully for evidence of membrane, to take cultures on Leoffler's medium for confirmation but to treat if we even had reasonable suspicion of the diagnosis. We did not bother except as to prognosis in distinguishing streptococcus sore throats from viral sore throats for we had no therapy for either. As a matter of fact, we did not then know nearly as much as we do today about the seriousness of Beta hemolytic streptococcus infection for it was not even known for sure at that time that scarlet fever—which was then a far more serious disease than it is now—was only a form of streptococcic disease. It is still as important as ever to recognize the now rare case of diphtheria but it is also important to recognize the streptococcus infection and treat it properly.

The streptococcus about which I am talking is the group A Beta hemolytic streptococcus and though it takes more elaborate methods to diagnose this type of streptococcus with certainty it can be reasonably well identified if a swab is taken from the throat and streaked by a wire on a sheep's blood agar plate. If the swab is made in the home it can be placed in a tube of ordinary infusion broth and streaked on the plate later. In 12 to 18 hours organisms surrounded by a clear zone of hemolysis should appear on the plates. If these are in chains rather than clusters they can safely be assumed to be the pathogenic organisms you are looking for. Since streptococcus infection almost always produces a leucocytosis, a white blood count is also advisable. The count is 12,500 or 15,000 in the majority of cases.

Children under three years of age react quite differently from older children to hemolytic streptococcus infection. The onset of the disease is less abrupt and the disease usually more protracted. The child seldom has a very sore or injected throat but is apt to have a running nose, cervical adenitis or otitis media. Dr. Breese[3] of Rochester, New York, writes that small impetiginous lesions on the upper lip or around the ear, when the child has a running ear, have been in his experience very suggestive evidence that the infection is one caused by the hemolytic streptococcus. Hemolytic streptococcus infections in this age group do not commonly cause as great a rise in antibody titres as they do in the older group nor is rheumatic fever, the disease we are talking about, a common sequel. Nevertheless, there is some evidence from Dr. Rantz,[4] that rheumatic fever may occur only after repeated infections with different types of hemolytic streptococci and so if we eradicate these infections in the small child we may possibly prevent the development of rheumatic fever following a streptococcus infection in the age group when rheumatic fever does occur.

Since we all know that sulfonamides, penicillin and many of the broad spectrum antibiotics are effective against the hemolytic streptococcus why is it so important to make a proper diagnosis? If the child is treated with sulfonamides the suppurative complications will be suppressed but the organisms not eliminated. As much rheumatic fever will occur as if the child had not been treated at all. Recovery from the infection itself is slow, relapses frequent and rebound to good health retarded. The broad spectrum antibiotics may do somewhat better particularly if used for some time, but again they do not eliminate the organism. Penicillin is the drug of choice and if given early usually produces a feeling of well being and negative cultures by ordinary methods within a period of 24 hours. But in order to eradicate the infection a sufficient level must be kept up for 10 days. This can be done by the use of oral penicillin 600,000 to 1,000,000 units a day for ten days, by the use of procaine penicillin G in oil 300,000 units every 3 days for 3 doses, or now far more easily and less expensively by the injection of 600,000 units of benzanthine penicillin G., (usually known as bicillin) an injection which is somewhat more painful than ordinary penicillin but which maintains a level in the blood for ten days high enough to kill off hemolytic streptococci. It has not been reported to cause any more reactions than other types of penicillin. In fact Dr. Stollerman,[5] at Irvington House, the famous convalescent rheumatic centre outside New York, says he has given 6,624 injections with only 1.3 per cent reactions. The reactions were transient urticaria subsiding within a few days and not reappearing when further injections were given.

If all patients came to the doctor when they had a streptococcus sore throat and if all infections produced severe enough symptoms so that the parent realized the child was quite ill then we should have no more rheumatic fever or rheumatic carditis in the future. But many streptococcal infections are very mild or subclinical and so are not treated. It therefore becomes imperative that the child who has once had undoubted rheumatic fever should be kept on continuous prophylaxis to prevent recurrent attacks. According to Currier McEwen[6] one out of two streptococcus infections in rheumatic subjects is followed by a recurrence of rheumatic fever. For prophylaxis either sulfonamides or penicillin may be used. The greatest experience has been with the use of sulfadiazine 0.5 gm. for small children under 60 pounds to 1 gm. a day for larger children. It is easily administered, well absorbed and cheap. There is a very slight risk of agranulocytosis, one in 10,000 patients, a greater risk of skin eruptions, 1 in 200 patients, but the skin eruptions are usually mild and often disappear even with continued therapy. This method of therapy has the disadvantage that if therapy is forgotten or if, perhaps, infection should break through the therapy sulfonamides being only bacteriostatic will not eradicate the infection. It seems wise therefore to employ penicillin. For oral prophylaxis 200 to 250,000 units of penicillin given a half hour before breakfast has been advised. We have been using 100,000 units given in one dose before breakfast or 50,000 units before breakfast and supper to our children in our rheumatic fever clinic in Arkansas and have apparently had good results. We have a few relapses but in each instance there has been reasonable doubt that the child was not receiving his prophylaxis regularly. Most toxic reactions consist of urticaria and skin rashes. If these are transient and disappear on stopping the penicillin for a few days it may again be cautiously resumed but, if severe, the penicillin must be stopped. Recently benzanthine penicillin G has been available for oral prophylaxis both in oral suspension containing 300,000 or 150,000 units to the teaspoonful or as 200,000 or 100,000 unit tablets. This preparation has the advantage of not having to be given on an empty stomach. The only place I find where it has been used is in Washington State. According to the Wyeth company the doctors there have given this form of prophylaxis to 443 patients with no reactions and no recurrence of rheumatic fever. It would seem as though bicillin would probably be the most satisfactory form of oral prophylaxis for the future. For operation or tooth extraction 600,000 units of aqueous and 600,000 of procain penicillin in oil should be given 30 minutes before the procedure in addition to the daily penicillin prophylaxis.

Since many parents and children cannot be relied on to give or take the prophylaxis regularly many physicians prefer to inject 1.2 million units of penicillin once every four weeks. The advantage of this form of therapy is that breaks in the prophylactic regime are less likely, single doses usually eliminate the streptococcus and it affords close patient contact. The injection is somewhat more painful than that of procaine penicillin and perhaps to the child emphasizes more that he is potentially ill than does the taking of a daily pill.

There is now no doubt that prophylaxis when given should be maintained both summer and winter, most people think it should be given to the child at least until past puberty and some have even advocated that, unless anything better is subsequently discovered, it should be given for the rest of the patient's life. I know well that the advice is good and any patient I had would be put on prophylaxis for at least several years. I had rheumatic fever over 30 years ago and have had no attacks since and so am glad that prophylaxis was not then discovered. In contrast I remember a little boy who first became ill when sulfonamide prophylaxis was known. He had rheumatic fever the first time without apparent cardiac involvement, the second time with mild cardiac involvement, and the third with cardiac disease which was either going to kill him shortly or at least leave him a permanent invalid when last I saw him. How often, as we made rounds, we thought of how well he might have been had his doctor prescribed prophylatic therapy; for his parents and he were both most cooperative. Surely, prophylaxis should be urged for several years after an acute attack of rheumatic fever.

So far we have talked only about the prevention of rheumatic fever and of relapses of the disease. Here everyone is I think in agreement. How shall we diagnose the disease once we suspect it and how shall we treat it after we have decided we have it? As you know, the diagnosis of rheumatic fever is easy in some cases and extremely difficult in others. If a history of a preceding sore throat or an attack of scarlet fever can be obtained or if the child has definite migratory polyarthritis, rheumatic nodules, erythema marginatum, tachycardia out of proportion to fever and an apical systolic murmur transmitted to the axilla or a mid diastolic apical murmur or a diastolic basal murmur in the second left interspace, pericarditis or an enlarged heart, chorea or any combination of these he almost certainly has rheumatic fever. If the diagnosis is in doubt an E.C.G. with definite prolongation of the P-R interval for the rate is helpful. A single sedimentation rate means nothing but undue prolongation of an increased sedimentation rate after infection is suggestive. A normal sedimentation rate, not in the presence of cardiac failure, when the sedimentation rate is usually normal, is strong evidence against rheumatic fever. In like manner an antistreptolysin-O-titre of over 200 Todd units while it is only indicative of preceding streptococcus infection usually remains for a long time in rheumatic fever. While this test is not practical for the physician's office many hospital laboratories are now equipped to do it since the material has become commercially available through the Difco Company. In like manner the C- reactive protein which is even more nonspecific, being elevated following many acute infections, is elevated in rheumatic fever. This test is easy for the hospital laboratory to do and the material is available through Schefflein and Company. The test is positive even in the presence of cardiac failure. Unlike the antistreptolysin-O-titre, which is usually not elevated in rheumatoid arthritis and lupus erythematosis, two diseases sometimes difficult to distinguish from rheumatic fever, the C-reactive proteins are high in the active phase of both these diseases as well as in rheumatic fever.

Once the diagnosis is made the question of treatment arises. Since by ordinary cultural methods the hemolytic streptococcus was not usually cultured from the throat after the rheumatic fever started and it was once thought that sulfonamide while preventing relapses of streptococcus sore throat might make rheumatic disease worse, sulfonamide therapy was not advised until after the rheumatic infection had become quiescent. As I have already said it is now thought that the infection persists in rheumatic fever and that its presence tends to make the disease more severe. Therefore, the first step in therapy is to give enough penicillin to eradicate the infection, following this with continuous prophylactic therapy at a lower level. The methods available for doing this have already been discussed. 600,000 units of benzanthine penicillin G is what we use. Since I am out of the great currents of discussion of disease I had not realized this point until very lately. I once knew a practitioner who insisted on treating all her acute rheumatics with large doses of penicillin for at least 10 days. We used to laugh at her apparent ignorance. Fortunately her cases were all mild and they all did exceedingly well. Perhaps, they did well because she was wiser than we. How often we tend to scoff at the therapy of someone only later to find that the therapy has good scientific reasoning behind it. We now treat all our patients with penicillin, as she did, with the addition of other therapy as indicated.

Undoubtedly the greatest question in the treatment of rheumatic fever, particularly rheumatic carditis, is when to or not to use cortisone or ACTH and if so in what dosage. The report from the Cooperative Clinical Trial of ACTH, cortisone and acetyl salicylic acid has just appeared in the March issue of Circulation as well as the British Medical Journal. The dosage employed was for cortisone: 300 mg. for 2 days, 200 for 5 days, 100 for 2 weeks, 75 for 2 weeks and 50 for the sixth week. ACTH was given in a dosage of 120 mg. for 4 days, 100 mg. for 3 days, 80 for 1 week, 60 for 1 week, 40 for 2 weeks, and 20 the sixth week. There was no evidence that any of the three agents resulted in uniform termination of the disease. On all three treatments fresh manifestations developed during treatment in some cases. At the end of a year there was no significant difference in the status of the heart in the three treatment groups. During the period of treatment, observation and a year of follow-up examination there were only 6 deaths among the 497 patients admitted for study. About two thirds of the cases were treated in their first attack of rheumatic fever, only a few of the other third had preexisting carditis and only 52, as far as I can make out, had severe carditis or were in failure. Although I agree with the editors of the New England Journal that the results of this study place a heavy burden on those who feel that one might still recommend ACTH or cortisone in order to prevent rheumatic heart disease, it seems to me that they do not prove that other treatment schedules with ACTH or cortisone may not at times decrease the amount of residual heart damage or even occasionally save a life. They do prove that in first attacks of rheumatic fever adequately treated with bed rest and salicylates for at least six weeks the prognosis for life is excellent and if no heart murmurs nor cardiac enlargement, or only minimal degrees of either, are present at the onset of treatment, the prognosis not only for life but for the development of severe carditis in this attack is excellent.

In regard to the treatment of rheumatic fever with salicylate I have evidently been behind the current thinking. For a long time I had thought it was now well proved that salicylates only relieve joint pain and swelling, may aid in pericarditis and are only of benefit in myocarditis by reducing fever and so relieving the strain on the heart. This is apparently not the current thinking. Most people believe that salicylates in large doses probably have a suppressive effect on the carditis. The dosage schedule advised is acetyl salicylic acid 1 gr. per pound of body weight for two days, then two-thirds of a grain per pound for five days, followed by ½ grain per pound for three to six weeks. The dose is then reduced 5 gr. a day provided there are no clinical evidences of activity. Sodium bicarbonate is no longer given. If possible it is well to be sure that the C-reactive proteins have disappeared before the therapy is stopped.

As far as the use of the hormones is concerned the question is not settled. Even before the cooperative study was completed many people were starting to use far larger doses of cortisone than had been used in the study and many have thought they were getting results better than those with salicylate alone. The plan in most places is now to use 300 mg. daily of oral cortisone for 30 days to six weeks in the presence of carditis of any severity and to reduce the dose by 12.5 mg. a day daily at the end of this time provided clinical and laboratory evidence of activity is gone. Most authors advise that the sodium intake should be cut to no more than 2 gm. a day or less, many even to 200 mg. a day. The patient should at least be kept on unsalted food without added salt at the table and two to three grams of potassium chloride given a day as well as the penicillin already mentioned. With this régime rebound phenomena are usually mild and though the sedimentation rate may rise temporarily and the C-reactive protein transiently reappear, both they, and the fever which is often present, usually subside without further therapy. This is a long, expensive and somewhat dangerous type of therapy and often an impossible one. Nevertheless, both Currier McEwen[7] and Dr. Kuttner from Belleview as well as many others think it is at times life saving. We have tried a somewhat shorter similar course on two desperately ill patients in Arkansas, both of whom are now doing very well and it is my feeling that I should try it again on any patient with fairly early, very severe, rheumatic carditis. As always, without control studies we may have fooled ourselves that we really accomplished more than we might have without the hormones.

One of these children, G. V. E. was an 11 year old, colored girl, who had been short of breath for 5 weeks with some orthopnea and edema of her legs. Three days before admission she had had pain and swelling of the right wrist. On admission she had a temperature of 104, pulse of 128 and respirations of 56. She was markedly dyspneic and edematous. There was a loud blowing systolic murmur at the apex of the heart well transmitted into the axilla. Her sedimentation rate, in spite of the failure, was 60 mm. per hour. A roentgenogram of her heart demonstrated moderate enlargement and there was mottled haziness of the lungs. She was put in an oxygen tent, digitalized and a regime of cortisone 300 mg. a day given. By the third day her temperature was normal, she was out of the oxygen tent and comfortable lying flat. At this time we were discontinuing cortisone abruptly so her dose was kept at 300 mg. a day and was discontinued after three weeks. She was quite ill for two days, probably a rebound phenomenon, and did beautifully. The sedimentation rate fell to 30 mm. but she developed a definite diastolic murmur over the aortic region. She was followed at the Convalescent Centre for some time and then sent home. Digitalis was continued but no longer therapy except moderate bedrest. When last seen at our rheumatic fever clinic early in March her heart was normal in size, the systolic murmur at the apex was now faint and the basilar diastolic murmur gone and the sedimentation rate normal. We think the child should have no residual cardiac damage and should remain well if she has no further rheumatic activity. Perhaps she would have done just as well without the cortisone. It is hard to withhold it in a patient as ill as this one. At least it now seems that if we do our most important job of prophylaxis she may be a normal child, because of or in spite of our original therapy.

Again there is the question whether hormones are of any use in the rheumatic who has low grade activity over a long period of time. Most authors state that they do not and yet it has seemed to us that these are the patients in whom we have occasionally had the best results. One little girl in Cincinnati had been followed at the Convalescent Home for months, always with low grade fever, and now and again in cardiac failure. Her sedimentation rate was always high except when she was in cardiac failure. We readmitted her to Children's Hospital and gave her a three weeks' course of cortisone. For the first time she really seemed to improve, her heart became somewhat smaller, her sedimentation rate fell to normal and remained there and it was our impression that we had at least temporarily stopped the progression of the disease. Perhaps she had an unrecognized streptococcus infection and the increased antibiotics we gave her along with the cortisone was what really helped her.

A patient of ours in Arkansas was a 12 year old white child who had a story of almost continuous rheumatic activity both of the joints and heart for a period of two years. She was supposed to have been so short of breath 9 weeks before admission that she had to sleep on 11 pillows! On admission she was not quite as ill as described but was in mild cardiac failure and had many subcutaneous fibroid nodules. She also had a high sedimentation rate of 40 mm. per hour in spite of her cardiac failure. Her heart was moderately enlarged with both a systolic and presystolic murmur at the apex and a mitral configuration by roentgenogram. She received cortisone 300 mg. a day for only 14 days at which time she seemed so well that we discontinued the therapy. The sedimentation rate was falling and continued to fall after therapy was discontinued. She returned home on bedrest and digitalis and has continued to do well. When last seen in our cardiac clinic two months after her first hospital admission she was feeling much better than she had in the last two years. She still had her murmurs, her nodules were gone and her sedimentation rate was 19 mm. This child will probably never have a normal heart. The course of cortisone was extremely short and she was digitalized while she was being treated. Dr. Taussing has reported cases of children who have done equally well on salicylates and bedrest and digitalis when indicated. It is certainly easy to think one's therapy has caused a patient's improvement when improvement occurs.

At the present time I should go along with Currier McEwen of Bellevicw who advises that in acute rheumatic fever (1) penicillin should be started at once in sufficient doses to eradicate the hemolytic streptococcus carrier state and continuous prophylaxis started at once with penicillin or sulfonamides; (2) acetylsalicylic acid should be given in reasonably large doses for those patients without cardiac involvement for six weeks or until signs of activity have disappeared; (3) if definite carditis is present 300 mg. of cortisone daily for 3 - 6 weeks with a gradual reduction thereafter is worth trying. Even in old active cases I think similar therapy with cortisone should be considered when all else seems to have failed.

I should like to say a word about digitalization. There is certainly no doubt at the present time that many children with active rheumatic carditis benefit greatly from digitalization. As you know it is best to become used to one preparation and stick to it for most cases. We have used crystodigin, a brand of digitoxin, and have usually found 30 micrograms per kilogram of body weight an adequate digitalizing dose with a tenth of the dose given daily thereafter for maintenance. We usually give it by mouth though in very ill patients we have given it both intramuscularly and intravenously. Many of the children receive mercuhydrin also, from ½ to 1 c.c. daily. For children with chronically enlarged hearts the digitalization is continued indefinitely. For those like our little girl with the acute failure with severe rheumatic activity it is discontinued after 3-4 months if their rheumatic activity is gone.

I am sure you have all received advertisements from Schering of the new crystalline corticosteroid "meticorten" which has been used mostly in rheumatoid arthritis and which is supposed to cause little if any sodium retention and increased potassium excretion but does occasionally cause mooning of the face. It is supposed therefore that when this hormone is given diet will no longer have to be restricted though antibiotics will have to be used as before and signs of hypertension and glycosuria watched for. Dr. Kuttner writes me that they have one patient on this therapy in New York. He has been on 75 mg. daily for 13 days, his diet is general ward diet. He has gained only 1 pound but does have a slight moon face.

Like many other diseases which the older ones of us saw and treated frequently when we first started practice rheumatic fever and rheumatic heart disease are fortunately declining in severity and incidence. Perhaps wide spread use of antibiotics even when not ideally used has a great deal to do with this. Perhaps pediatricians who follow their patients from birth and treat the small children with atypical streptococcus infection early and adequately prevent enough recurrence of infection with different types of streptococci to prevent rheumatic fever after an inapparent streptococcus infection in an older child. I wonder how many of you who treat children see any rheumatic fever develop in children whom you have cared for from birth. We in Arkansas are still seeing the disease frequently but only care for the poor, most of whose minor illnesses, or what is thought to be minor, have been neglected.

As important as it is to prevent rheumatic fever and relapses of rheumatic fever—and that, as so often in pediatrics, comes down to be the most important role of the pediatrician in the disease—it is almost equally important not to diagnose rheumatic fever when it is not there. The child with vague joint or leg pains, a low grade fever and tiredness may deserve an injection of bicillin to eliminate any possible chronic streptococcus infection which may be present but should not be put to bed for long periods of time nor put on a long continued prophylactic program of sulfonamides and penicillin. Even if another physician has seen the child in what sounds like a somewhat atypical attack of rheumatic fever I would not start the child on prophylaxis unless the child had almost unmistakable rheumatic carditis, either a well transmitted mitral systolic murmur or a basilar diastolic murmur typical of aortic insufficiency, or cardiac enlargement. Nor should the child with rheumatic fever and a normal heart be kept in bed or made to rest once the rheumatic activity has subsided. Often the parents are so concerned over the disease that it is hard to persuade them that their child is well. They think their child gets tired easier than others when it is their anxiety which is making the child tired. Neither in the army nor at La Rabida Sanitorium, outside Chicago, could any advantages be shown for long periods of rest after rheumatic fever provided the infection was quiescent and the heart not so severely damaged that dyspnea was present on activity. For the child with a normal or not too badly damaged heart even competitive sports may be allowed.

The points which have recently been brought out about rheumatic fever which seem to me to be of the most important are (1) we should do our best to diagnose Beta hemolytic streptococcus infection and treat it adequately (2) we should eliminate the Beta hemolytic streptococcus infection in the rheumatic patient (3) we should make every effort to see that the rheumatic patient receives continuous prophylactic therapy (4) we should use adequate large doses of salicylates for acute rheumatic fever and (5) reserve our judgement about hormone therapy, using it when we feel we must in cases of severe carditis but not rushing in with an expensive and somewhat dangerous form of therapy just because it is a dramatic thing to do.

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Plastic Surgery Problems in Children*

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CONGENITAL NEOPLASMS OF NOSE

There are three types according to origin of development error:

- I. Neurogenic Origin.
  - 1. Glioma
  - 2. Encephaloceles
  - 3. Neurofibromas
- II. Ectodermic
  - 1. Dermoid cyst or sinus
- III. Mesodermic
  - 1. Hemangioma

Neurogenic Origin.

1. Glioma. Extranasal ones are usually at the side of the bridge of the nose. The root of the nose is often broadened and the eyes are more widely separated than normal. Usually no defect can be detected in the skull, and there is neither pulsation nor change in size.

Gliomata can be best treated by surgical excision. Early excision is indicated to prevent irreversible deformity of the nasal bones. Recurrences are rare.

2. Encephalocele. This is difficult to distinguish from glioma clinically. The encephalocele contains an ependymal lined space, filled with cerebrospinal fluid which communicates directly with the ventricles of the brain, while the glioma is a solid mass of glial tissue, either entirely separated from the brain or connected with it by a fibrous stalk. Clinically, in diagnosing an encephalocele, one must look for a defect at the base of the skull, pulsation of the tumor, and increase in its size and tension on straining. Treatment of choice is surgical excision with closure of the dural defect.

3. Neurofibroma. According to New those on the face usually appear along the distribution of one or more branches of the trigeminal nerve. They are usually spongy in consistency and rather diffuse in outline. Macomber states that neurofibroma of the nose is local manifestation of generalized neurofibromatosis. It is made up of nerves and fibrous tissue. Treatment of choice is surgical excision.

Ectodermic Origin.

1. Dermoid Cyst. These lesions occur along the midline of the nose appearing as high as the glabella or as low as the nasal tip or base of the columella. They are most frequently subcutaneous, but occasionally a tract extends beneath the frontal or nasal bone. Even more rarely, they appear in the septum of the nose.

When this takes the form of a sinus, it appears externally as a dimple with or without hair extending from its depths. Such a dimple usually leads to a sinus tract extending for variable distances and depths. When the cyst appears it is usually globular, fluctuating and freely movable from the overlying skin. A history of recurrent infection is common in both forms. As a result of previous incision and drainage, multiple sinus openings may be present. Late cases may be complicated by deformity of the nasal bones as a result of direct pressure of the expanding cyst, or by osteomyelitis of the neighboring bones secondary to infection.

Complete excision of the entire lesion is the only method which insures a cure. Complete excision may require the removal of part of the bony structure thus resulting in a mild nasal deformity.

Reconstructive surgery, if necessary, may be left until the growth of the nose is complete.

Mesodermic Origin.

1. Hemangiomata. Diagnosis is usually easy, but the fibrotic cavernous hemangioma is often difficult to diagnose. It usually lacks the bluish discoloration and softness characteristic of the simple type.

The simplest classification is probably the best. Most every article on the subject gives a different classification. The one that seems to cover most all cases is capillary, arterial, cavernous, and mixed.

There has always been a great controversy over the treatment, and time of treatment, for these lesions. Some prominent physicians and surgeons have recommended that some of these lesions not be treated at all. They go so far as to say that a large number of them will disappear in approximately three years. There are other men, probably the largest number, who abhor the idea of such neglect.

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*Presented before the Section on Pediatrics at the eighty-seventh annual session of the Mississippi State Medical Association, Biloxi, May 10-12, 1955.

The opposed views are better understood when, after study, it is evident that the people are not referring to the same type of lesion at all times. The conservatives usually are not referring to the arterial hemangiomas, diffuse hemangiomatosis or gigantism. They also do not refer to the port-wine stain type of lesion. The lesion in which conservatism is advised is the raised strawberry hemangioma. The advocates of the very early treatment are most often referring to the hemangioma which may first appear as a small red spot soon after birth, and increases in size. The rate of growth is variable, but in many cases it is rapid enough to destroy a feature in a short time.

Most of us feel that activity should be controlled to prevent deformity. The growth of these tumors should be controlled in the simplest way possible. The principle methods of treatment are: a) injection of sclerosing solutions, b) electrocoagulation, c) radiation, and d) surgery.

a) Injection of sclerosing solutions—5 per cent sodium morrhuate is most commonly used. This is one of the most widely accepted methods in this country today.

b) Electrocoagulation—A good procedure for very small lesions. Figi uses it for deep scarring of large hemangiomas. He uses a sharp pointed insulated electrode.

c) Radiation—Formerly, before the harmful effects of excessive radiation were appreciated, repeated large doses resulted in such unfortunate conditions as abnormal pigmentation, telangiectasis, and sclerosis of the skin and subcutaneous tissues leading to further degenerative changes in later life. At the present time, it is generally accepted that mild forms of radiation, especially in babies, is a useful procedure even though surgery is reported to at a later date. Brown and Figi favor use of radon seeds implanted in the tumor. Superficial x-ray in small dosages at infrequent intervals with extreme care in the screening of the surrounding tissues has produced excellent results. Frequently the plastic surgeon is called upon to excise lesions that have been controlled in order to give a nicer result.

d) Surgery—Small localized lesions which can be excised without destruction of a feature or extensive grafting are handled well surgically. The result is rapid, positive, and usually excellent. The problem is more complicated when the lesion is large and diffuse, involving, for example, the side of the face, neck, mouth and tongue. Here, sclerosing solutions, electrocoagulation, or radiation is in order. This may produce results satisfactory enough to preclude surgery. In other cases the lesions may be fibrosed enough to greatly facilitate the necessary surgery.

ANKYLOSIS OF THE TEMPORO-MANDIBULAR JOINT

More than half of these cases have their origin before the age of ten, so considerable deformity results. The destruction of the growth centers in the condyle plus the lack of proper function through the years results in marked underdevelopment.

Bilateral ankylosis before adolescence leads to a "bird-like" profile. There is poor oral hygiene and the teeth are carious. The patients show signs of poor nutrition. In unilateral involvement before adolescence there is marked asymmetry of the mandible with the chin deviating toward the affected side. This results in flatness of the unaffected side.

Arthroplasty procedures vary from resection of the condylar head and nothing more to the introduction of foreign material to rebuild a joint. Cartilage, fascia lata, flap of temporal muscle and fascia, and even oxycel are used in an attempt to prevent recurrence of the ankylosis. Secondary procedures to round out the contour of the face are frequently indicated. These are usually in the nature of onlay grafts of cartilage for the purpose of improving the contour of the jaw.

EXSTROPHY OF THE BLADDER

The bladder is opened upon the anterior abdominal wall allowing the continual escape of urine thus causing malodor and wetting of clothes. The everted and exposed mucous membrane is very sensitive and is easily irritated by any pad or dressing. This deformity is accompanied by a wide separation of the pubic bones so that there is a waddling and unstable gait.

The therapeutic problem is: 1) to provide an adequate receptacle to receive and discharge urine at suitable intervals, 2) to remove the discomfort caused by the exposed mucous membranes, 3) to improve the appearance and structure of the genitalis, and 4) in the male, to construct a urethral tube which will permit reproductive activity.

Clinical findings—Exstrophy of the bladder is a deformity in which the lower urinary tract from the apex of the bladder to the external urethral meatus is open and lies exposed and everted. Urine is intermittently discharged from the ureters. Bilateral inguinal hernias are found in a large number of these cases. The bladder is dislocated anteriorly and is associated with a complete separation of the pubic bones. The ends of the pubic bones are bridged by a flattened, fibrous cord. There is also a wide diastasis recti below the umbilicus.

Treatment—Some of the earliest efforts to treat this condition were directed toward the restoration of the bladder and urethra anatomically. Attempts were made to turn the bladder in, close it, and give it an intra-abdominal position. The difficulty with this is in constructing a suitable bladder outlet and sphincter muscle. For the most part these operations were unsuccessful. For nearly sixty years the rectum has been used as a reservoir or dumping ground.

Results of treatment—Gross is completely discouraged from further attempts at inversion of bladder and urethra. Dr. H. H. Young reported a success in 1942. Dr. W. M. Adams has two cases which can be considered successes.

Gross reported on fifty-four cases treated by uretero-sigmoidostomy. He considers this the method of choice.

There seems to be a growing feeling of disfavor with this procedure. The common complications are hydronephrosis to some degree in all cases, pyelitis in a rather high percentage, "wet bowel" with difficulty controlling the anal sphincter, and proctitis. Some of these cases lack control of the anal sphincter also which would rule out the latter procedure.

The difficulties of the inversion method may prove insurmountable, but it seems worth further study and more effort.

CONGENITAL LYMPHEDEMA OR ELEPHANTIASIS

In 1892 Milroy described the heredity form of lymphedema. This disease is characterized by its familial lymphedema usually of the lower extremities. As a rule, both sides are involved. However, unilateral and negative family history have been reported. The cause is unknown. Frequently this condition is difficult or impossible to differentiate from the congenital anomalies of fat distribution. The treatment of choice at the present time is excision of the involved tissue including skin, subcutaneous tissue and fascia. The area is re-grafted with split skin grafts sometimes utilizing the best skin from the excised tissue. The Kondoleon and Sistrunk operations consist of excision of the subcutaneous tissue and deep fascia. This procedure is being studied at the present time by Peer of Newark. He insists upon radical excision of fascia. In cases with ulceration and or extensive scarring excision of all tissue down to the muscle with skin grafting is the only choice.

NEW ORLEANS GRADUATE ASSEMBLY

The nineteenth annual meeting of the New Orleans Graduate Medical Assembly will be held February 27-March 1, 1956, headquarters at the Municipal Auditorium.

The following officers and members of the Executive Committee have been elected for this year: Dr. Donovan C. Browne, president; Dr. Eugene H. Countiss, president-elect; Dr. Walter P. Gardiner, first vice-president; Dr. Cuthbert J. Brown, second vice-president; Dr. P. L. Querens, third vice-president; Dr. Maurice E. St. Martin, secretary; Dr. Jules Myron Davidson, treasurer; Dr. Charles L. Brown, director of program; Dr. Ralph M. Hartwell, assistant director of program; Dr. E. Perry Thomas, assistant director of program.

Executive Committee: Dr. Woodard D. Beacham (retiring president); Dr. George C. Battalora, Dr. Sam Hobson, Dr. Barrett Kennedy, and Dr. Ambrose H. Storck.

TV MEDICAL ASSEMBLY

The Tennessee Valley Medical Assembly (sponsored by the Chattanooga and Hamilton County Medical Society) will meet at the Read House, Chattanooga, Tennessee, Monday, October 3, and Tuesday, October 4, 1955.

The two-day sessions will present such nationally known essayists as: Philip Thorek, M.D., Chicago, Illinois; Edgar Hull, M.D., New Orleans, La.; George Pack, M.D., New York, N. Y.; Robert B. Greenblatt, M.D., Augusta, Ga.; Arthur Curtis, M.D., Ann Arbor, Mich.; Brian Blades, M.D., Washington, D. C.; Harry Bacon, M.D., Philadelphia, Pa.; Waldo E. Nelson, M.D., Philadelphia, Pa.; Alton Ochsner, M.D., New Orleans, La.; Thomas J. Dry, M.D., Rochester, Minn.; Nicholas J. Eastman, M.D., Baltimore, Md.; Elmer Hess, M.D., Erie, Pa.; J. Spencer Speed, M.D., Memphis, Tenn.; Sara Jordan, M.D., Boston, Mass.; Charles A. Doan, M.D., Columbus, Ohio; and Alexander Brunschwig, M.D., New York, N. Y.

Five Years' Experience with Acute Poliomyelitis in Patients Over Twelve Years of Age*

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Although we all have some hope and even expectation that the problem of acute poliomyelitis may be eliminated in the not too distant future, it seems appropriate to review our experience with some phases of the problem as it has presented itself during the last five years. From the very beginning of a formal program of treatment under the National Foundation for Infantile Paralysis, the Vicksburg Hospital has accepted patients of all ages and of both races. Although the author has had no personal responsibility for the child in the pediatric age group, it will be of interest to note the over-all volume of polio admissions during these last five years 1950-54 inclusive. Patients have come from all areas of the state and all polio suspects have been admitted. A total of 1663 patients have been admitted for study. Three hundred and fifty-two (352) were above the age of 12 years.

The seasonal distribution of admissions is of some interest.

GRAPH 1

Polio—All Ages—1950-1954

January	53
February	50
March	37
April	33
May	66
June	151
July	298
August	292
September	229
October	187
November	122
December	44

Although it is apparent that polio incidence is maximal in hot weather, especially during June, July, August, September and October, it is equally apparent that the disease is encountered at other times throughout the year.

Our subsequent discussion will be limited to consideration of patients above the age of 12 years; that is to say, age 13 years and older. Their distribution by years was as follows:

The figures for age incidence are not significant for we have excluded the large number of cases in ages 1 to 13 years. The oldest patient diagnosed as having polio was 54 years of age. Among the whites, the over-all average of females and males is about the same (30.4 per cent and 38.1 per cent). However, in the colored group, males outnumbered females almost 3 to 1 (18.1 per cent to 7.4 per cent). This may possibly be due to the fact that in general, males in this age group probably engage in much more strenuous and prolonged physical work during the polio season, and this influenced the severity of the disease and accentuated the symptoms so that a greater number came to the attention of the local physician.

Next, let us look at the classification of cases: First we will notice that approximately 2 in 3 (67 per cent) suspected cases proved finally to have polio. All of those who have any experience with the diagnosis of infection due to the polio virus are aware of the many complexities encountered in the differential diagnosis. There is no infallible method of early diagnosis and certainly

GRAPH 2

	1950	1951	1952	1953	1954	TOTAL
Average Age, All Polio Cases, Years	20.3	21.6	21.3	23.6	23.7	21.7 Yrs.
Sex and Race, Percentage of Polio Cases						
Female, White	24.6	41.4	38.8	50.0	36.9	36.4
Male, White	47.5	31.0	38.8	31.8	36.9	38.1
Female, Colored	6.6	8.6	6.1	0.0	13.1	7.4
Male, Colored	21.3	19.0	16.3	18.2	13.1	18.1

GRAPH 3

	1950	1951	1952	1953	1954	TOTAL
No. Cases Suspected Polio	95	88	75	43	51	352
Number Cases Polio	61	58	49	22	38	228
Polio Cases, Percentage of Suspected Cases	64.0	66.0	65.0	51.0	75.0	67.0
Bulbar Cases, Percentage of Polio	14.8	12.1	12.2	13.6	29.0	15.8
Non-Paralytic, Percentage of Polio	31.2	52.8	32.7	54.5	36.8	35.1

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*Presented before the Section on Medicine at the eighty-seventh annual session of the Mississippi State Medical Association, Biloxi, May 10-12, 1955.

†Vicksburg Hospital and Vicksburg Clinic.

also the enormous pressures of public opinion on the local physician and health officer during an epidemic seriously complicates the problem. It is still unfortunately true that in many areas polio is looked upon as being only slightly less vicious than the plague, or rabies, or some similar disorder. There has often been a tendency therefore to move to the hospital at once, often without any attempt at careful examination every child that has sore throat, headache, or unexplained fever and even a variety of other symptoms. At this point let us look at those cases admitted as polio and later proved not to have the disease.

GRAPH 4

Hysteria	18
Undiagnosed Disease	13
Meningococcic Meningitis	8
Acute Lymphocytic Choriomeningitis	3
Guillain Barre	7
Brain Tumor	3
Mumps Encephalitis	3
Bacteria Meningitis—Etiology not Proved	2
Bacterial Meningitis due to Streptococcus	1
Meningitis due to Pneumococcus	1
Influenzal Meningitis	1
Brain Abscess	1
Hookworm	1

GRAPH 5

No disease	2
Chronic Arachnoiditis	1
Lateral Sclerosis of Cord	1
Multiple Sclerosis	2
Cerebral Hemorrhage	1
Amoebic Colitis	1
Bacillary Dysentery	1
Fever of Unknown Origin	2
Bronchial Asthma	1
Fibrosarcoma of Hip	1
Heat Exhaustion	1
Acute Nasopharyngitis	1

GRAPH 6

Streptococcic Septicemia	1
Acute Bronchitis	1
Furunculosis of Buttocks	1
Marie-Strumpell Arthritis	1
Acute Arthritis of Knee	1
Hemophilia	1
Progressive Muscular Atrophy	1
Acute Torticollis	1
Combined Sclerosis of Cord	1
Lumbosacral Strain	1
Dysmenorrhea	1
Polyneuritis	1

GRAPH 7

Acute Appendicitis	1
Meningismus	1
Cerebral Palsy	1
Lumbosacral Arthritis	1
Acute Infectious Mononucleosis	2
Thrombosis of Spinal Artery	1
Sickle Cell Anemia	1
Hypertension	2
Acute Rheumatic Fever	2
Concussion of Brain	2
Acute Otitis Media	1
Epidural Abscess	1

GRAPH 8

Rheumatic Heart Disease	1
Atypical Pneumonia	1
Lobar Pneumonia	1
Encephalitis—Etiology Not Determined	1
Typhoid Fever	1
Acute Thyroiditis	1
Fracture of Sacrum	1
Tabo-Paresis	1
Erythema Nodosum	1
Myelitis, due to Anti-Rabic Vaccine	1
Trichinosis	1

It would be very time consuming indeed to discuss the differential problems presented. We may, however, comment regarding a few. You will notice a considerable number[13] discharged as undiagnosed disease and several as fever of unknown origin. It must be pointed out that during an epidemic, the patient who obviously does not have polio, often has to be moved out of the hospital quickly to make room for the real polio and consequently diagnostic study is impossible at times. This is a problem of bed space and also of medical economics. The Polio Foundation obviously can not assume expense for study or treatment of non-polio cases. Also, many of these are completely indigent patients whom the hospital can not keep. All too often the hospital has been "stuck" so to speak with an indigent meningococcic case, a tetanus case or other similar problems which conscience and public health considerations will not allow us to return home where medical care facilities may be completely lacking.

Let us briefly consider some of the more common diagnostic problems. One may at first assume that patients with hysteria should be easily excluded. This problem among relatives or close associates of proven polio cases, however, may be very difficult. We must depend upon a careful clinical evaluation of personality, careful study of the "bizarre" onset and physical findings and finally upon a normal spinal fluid picture.

Meningitis of various forms presents some problem. In general the bacterial meningitis patients should be easily ruled out by the complete absence of paralysis and by the relatively high spinal fluid cell count or the demonstration of bacteria. Acute lymphocytic meningitis can only be ruled out by virus studies or clinical course and all of these must therefore be considered polio until observed throughout the illness. Whenever the spinal fluid lymphocyte count is 95 per cent or higher, this may be the presumptive diagnosis.

Guillain-Barre cases may at times only be excluded by a period of prolonged observation although the rapidly ascending symmetrical paralysis associated with normal or low spinal fluid cell count and high protein content will usually help us. The ultimate recovery (complete) of those who do not die in the acute phase is also helpful.

The chronic neurologic disorders such as multiple sclerosis, combined sclerosis, progressive muscular atrophy, tabes, etc., should as a rule be easily excluded by a careful clinical history and examination. Spinal fluid findings though often not necessary will be helpful.

Various forms of encephalitis such as that with mumps, acute infectious mononucleosis and those of unknown origin, can be troublesome. Only virus studies will clarify the latter although history, clinical course, physical findings and compliment fixation or heterophil antibody studies usually solve the other two.

Now to look at the polio patients. Note that 35.1 per cent were classed as non-paralytic polio. This diagnosis, incidentally, is based on observation during the acute phase of the disease and may possibly, therefore, include some who in a followup in two to six months, with detailed muscle testing, spine x-ray, etc., may have shown some definite paralysis. We should also mention here that late or convalescent polio patients admitted to the hospital were excluded from this study. The incidence of non-paralytic cases in our series (35.1 per cent) is relatively low. In most epidemics it varies from 30 to 60 per cent, depending upon diagnostic criteria, hospital admission procedure and the character of the epidemic. Our percentage also is influenced by the fact that the more serious cases were routinely sent to the acute treatment center. Where the incidence of non-paralytics is high, there is usually associated a low mortality and conversely when incidence of non-paralytics is low, there is usually a high mortality.

You will note that 15.8 per cent of our cases were bulbar or bulbar spinal. This is above the average of 10 per cent and is greatly influenced by our 1954 experience when 29.8 per cent of cases had some bulbar involvement. The relation of bulbar cases to mortality will be discussed later.

It is of some interest to note the incidence and location of paralysis in the paralytic cases:

Involvement of the legs is of course most common (77.6 per cent). The relatively high (41.2 per cent) with arm involvement indicates the more dangerous type, not infrequently spreading over into spino-bulbar form with respiratory difficulty. The 31 per cent with trunk involvement is due chiefly to lower back and pelvic girdle paralysis in those with lower extremity weakness.

What was our experience with respiratory aid equipment? This includes tank respiratory, Monahan respirator and rocking bed.

It is apparent that temporary respiratory aid was needed in approximately 1 in 16 cases, 7.1 per cent) and that about 1 in 3 of the trunk cases (34.8 per cent) and that approximately 1 in 20 became a so-called permanent respirator case. This figure is high for our hospital received the majority of respirator cases from the entire state. The high correlation between trunk involvement and requirement of respiratory aid is to be expected because of intercostal involvement. Among those classed as permanent respirator cases, there are some who with prolonged care became temporary cases. The absolute ultimate picture is not precisely shown in these figures which as previously indicated are based upon the acute phase of the disease.

Certain problems which might be classed as complications were encountered in our series.

GRAPH 10

	RESPIRATORY AID	1950	1951	1952	1953	1954	TOTAL
Temporary	Percentage of Polio Cases	4.9	8.6	15.1	10.0	8.3	7.1
	Percentage of Trunk Cases	60.0	29.4	31.2	20.0	66.7	34.8
Part-Time	Percentage of Polio Cases	1.6	3.5	6.1	0.0	0.0	2.2
	Percentage of Trunk Cases	20.0	11.8	12.5	0.0	0.0	10.8
Permanent	Percentage of Polio Cases	3.3	8.6	15.1	10.0	0.0	5.7
	Percentage of Trunk Cases	40.0	29.4	31.2	20.0	0.0	28.2

GRAPH 9

	1950	1951	1952	1953	1954	TOTAL
Paralytic Cases, Percentage of Cases	69.0	67.2	67.3	45.5	63.2	64.9
Paralysis Arms, Percentage of Paralytic Cases	35.7	53.9	30.6	50.0	20.8	41.2
Paralysis Legs, Percentage of Paralytic Cases	73.7	92.4	68.0	50.0	54.1	77.6
Paralysis Trunk, Percentage of Paralytic Cases	11.9	43.7	32.7	50.0	12.5	31.0

GRAPH 11

	1950	1951	1952	1953	1954	*Total*
Pregnancy, Percentage of Females	0.0	3.4	4.5	0.0	21.0	6.0
Cases Showing Retention Percentage of Cases	1.6	13.8	9.1	21.0	21.0	11.8
Tracheotomy, Percentage of Polio Cases	0.0	3.4	4.1	6.7	10.5	3.9

Among the 100 females in the series there was a 6.0 per cent incidence of pregnancy. You will notice wide variation from year to year. The percentage figure, however, appears to be high in 1 in 16 when we consider that many of this series were patients whose ages were young, 13, 14, and 15 years of age and that the average of the entire group was only 21.9 per cent years. The relatively adverse effect of pregnancy on the course of polio has been frequently noted. Urinary retention especially in the patient with lower extremity involvement is relatively common and actually it probably exceeded the 11.8 per cent which was found for our series; this included the non-paralytic cases as well. Fortunately this complication although troublesome in the acute phase of the disease, always cleared spontaneously as the convalescence continued.

You will notice that the incidence of tracheotomy varies somewhat from year to year, largely depending upon the bulbar or respiratory cases, but that we steadily increased its usage from 1950 to 1954. In the latter year 1 in 10 patients had a tracheotomy. This was, however, a year with high incidence of bulbar cases. We feel very strongly that tracheotomy is one of the most important aids in saving life in the severely damaged polio case. The procedure should be done when one begins to question whether the airway is open or whether the patient is filling with mucus rather than waiting until obvious signs of distress are present. All patients with dysphagia should have a tracheotomy and many of those with a speech defect.

We have had now a fairly comprehensive look at the series of cases. We are now interested in the ultimate fate of these patients. How much disability and what mortality? Our estimate of disability is an estimate only. It is not based on a long-time followup nor muscle testing but largely represents an estimate of the situation at the end of the acute phase of the illness. These estimates are not necessarily related to work potential.

One to 10 per cent might indicate slight weakness of a calf muscle not seriously interfering with locomotion. Eleven to 25 per cent might be illustrated by more extensive weakness interfering somewhat with locomotion but not requiring braces. Twenty-six to 50 per cent could be illustrated by serious involvement of one leg requiring braces but permitting locomotion. Fifty to 75 per cent could be illustrated by bilateral leg involvement requiring braces and permitting locomotion with difficulty possibly requiring crutches or by serious bilateral arm involvement interfering with feeding, bathing, etc. Seventy-five to 100 per cent disability represents the patient who is a rather complete invalid because of extensive arm and leg involvement or with requirement of respiratory aid.

GRAPH 12

	1950	1951	1952	1953	1954	*Total*
No Disability, Percentage of Polio Cases	41.0	46.5	36.7	77.2	55.4	47.5
1 to 10% Percentage of Polio Cases	1.6	3.5	2.0	0.0	7.9	3.1
11 to 25% Percentage of Polio Cases	8.2	5.2	6.1	9.1	10.5	7.5
26 to 50% Percentage of Polio Cases	24.6	12.1	24.5	0.0	13.2	17.1
51 to 75% Percentage of Polio Cases	8.2	8.6	10.2	0.0	10.5	8.3
Percentage of Polio Cases	8.2	12.1	12.2	9.1	0.0	8.8

You will notice that only 47.5 per cent were considered to have no disability. This correlates well with a relatively low incidence of non-paralytic cases and further indicates that we are dealing with a severe form of polio. Notice that greater than 25 per cent disability was noted in 34.2 per cent of the cases and that 8.8 per cent or nearly 1 in 10 were more than 75 per cent disabled. Many of these have been greatly improved by subsequent physical therapy and training. Some also have been helped or will be helped greatly by reconstructive surgery. It must be obvious, however, that our Polio Foundation still has a big problem with these cases even though all acute cases may be prevented by the vaccine.

GRAPH 13

DEATHS	1950	1951	1952	1953	1954	*Total* & *Avg.*
Total Number	2	5	4	1	0	12
Percentage of Polio Cases	3.3	8.6	8.2	4.5	.....	5.3
Percentage of Paralytic Cases	6.5	20.8	14.8	20.0	.....	8.1
Percentage of Bulbar Cases	22.2	71.5	66.7	.....	.....	33.3

We have included all deaths regardless of whether the patient died within a few minutes or a few hours after admission. There were, you will notice, 12 deaths. Excluding three who died after 31, 25, and 118 days of bronchopneumonia while confined to a respirator the average stay in the hospital was only 2.6 days for those who died. We were dealing with a rapidly progressive disease. Our average mortality was 5.3 per cent which compares favorably with other hospitals dealing with an equally severe form of polio as indicated by a high percentage of paralytic cases as opposed to non-paralytic and also a high percentage (15.8 per cent) of bulbar cases. One in three (33.3 per cent) of the bulbar cases died.

A good history and even a fairly good examination will in vast majority of instances enable us to suspect polio and that these data along with spinal fluid studies will at least give the data on which to base hospitalization. There will, nevertheless, be some cases particularly of other central nervous system disorders such as lymphocytic choriomeningitis and Guillain-Barre syndrome that can not possibly be decided without laboratory virus studies and the reports of these if available will come long after the patient has recovered or died.

We have recorded the pertinent facts of history and examination in our patients. You are all familiar with the usual story of headache, nausea and vomiting, stiff neck, fever and ultimate paralysis. The chart shows the incidence of these symptoms.

GRAPH 14

	1950	1951	1952	1953	1954	*Avg.*
Headache, Percentage of Polio Cases	82.0	82.7	90.0	91.0	76.0	83.6
Nausea and Vomiting, Percentage of Polio Cases	31.6	36.2	30.6	50.0	52.7	39.0
Fever, Percentage of Polio Cases	32.8	62.0	61.2	50.0	65.8	57.8
Stiff Neck and Back, Percentage of Polio Cases	75.4	82.7	91.8	95.5	91.8	85.4

You will notice that headache is by far the most constant symptom, being present in 83.6 per cent. In fact the absence of headache at some stage of the disease would lead us to seriously question the diagnosis. Nausea and vomiting were present in 39 per cent. Undoubtedly this and other gastrointestinal symptoms including diarrhea are much more common in the child under the age of 12 years. Fever was either reported or present on admission in 57.8 per cent of patients. I do not doubt that all, however, had some fever at some time during the illness. Paralysis as a symptom reported by the patient at the time of admission or prior to that date, was present in 125/228 (54.8%) of cases. We are somewhat interested in the interval between the onset of illness and the development of paralysis. Although this time interval is not always easy to determine, we were able to tabulate it in a considerable number (89). The average was 3.58 per cent days. On physical examination, stiffness of the neck and back were found in 85.4 per cent of the patients and often constituted a complaint of the patient on admission. Its presence may at times be noted only by testing in the sitting posture when flexion of the neck will show stiffness that can not be found in the recumbent posture.

The spinal fluid study is, of course, the major tool in diagnosis. One should, however, avoid a spinal puncture in those desperately ill patients in whom the diagnosis is already obvious without a puncture. We have separated the spinal fluid studies into those done inside the hospital under well-controlled conditions by the same laboratory and same technician and those done outside of the hospital by a variety of technicians and doctors all over the state.

GRAPH 15

	1950	1951	1952	1953	1954	*Total* & *Avg.*
Not Done or No Report, Percentage of Polio Cases	16.1	15.5	20.4	9.8	10.5	14.9
Done in Hospital, Percentage of Polio Cases	39.4	39.6	45.0	40.8	47.4	41.7
Cell Count, Avg.	175	155	240	117	96	160
Lymphocytes, Avg. Pct.	77	79	77	67	84	78
Protein, MGMS, Pct. Av.	61	57	51	49	71	59
Done Outside Hospital Percentage of Polio Cases	42.7	43.2	44.9	54.5	44.7	45.2
Cell Count, Average	250	248	225	123	223	220
Lymphocytes, Av. Pct.	76	66	62	65	71	69
Protein, MGMS, Pct. Av.	74	72	117	72	75	79

In the aggregate you will notice that the figures for total cell count (160) and protein (59) are lower in the hospital cases, while the lymphocyte count (78%) is higher in the hospital cases. These differences may be explained by the fact that punctures done at home were probably done early in the course of the disease when the lymphocyte count is usually somewhat lower. Approximately one in 20 of patients with polio will show a normal spinal fluid.

We have reviewed our experience with 352 cases of suspected polio above the age of 12 years encountered during the years 1950-1954. Two hundred and twenty-eight of these had proved polio. Statistical data relative to symptoms, physical findings, and the spinal fluid study have been presented along with an analysis of the cases as to whether non-paralytic, paralytic or bulbar. Mortality figures and disability figures have also been presented.

Clearly there is an indication of the necessity of careful screening of suspected polios at home prior to hospitalization. Obviously also there still remains a large volume of work for the Polio Foundation in handling the disabled polio patient even though polio vaccine might exceed our expectations and eradicate the disease. It is, therefore, imperative that adequate facilities be maintained for the management of the acute and chronic polio patient.

Tonography*

Its Role in the Diagnosis and Management of Glaucoma

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As Doctor Kronfield has stated "Tonography is a new term for a procedure which consists essentially of the observation of the drop in ocular tension that occurs during prolonged or sustained corneal application of a tonometer of the Schiotz type."[1] Although it has been known for many years that patients with chronic, simple glaucoma have an increased resistance to aqueous outflow, the observation that the drop in ocular tension under the influence of repeated or prolonged application of the tonometer is less in glaucomatous than in normal eyes is attributed to Wegner. In 1934 Kronfield, Boeck and Stough[2] reported a statistical study of the drop in ocular tension under the influence of a tonometer load of fifteen grams applied for two minutes. More recently the extensive work of Grant[3] has given new impetus to this method of examination.

Studies of this type have been made possible by the development of the electronic tonometer by V. Mueller and Company. This instrument is a modification of the standard impression tonometer devised by Schiotz. However, instead of recording the indentation of the cornea by weighted plunger by means of levers, the electronic tonometer measures the displacement of the plunger electronically, that is by amplifying and then measuring a slight electric current generated by the movement of the plunger. One of the advantages of the electronic tonometer is the greater physical accuracy of the electronic measuring device as compared with any existing mechanical lever device. The use of a recording system with the electronic tonometer is desirable but not essential.

Technique: The patient is permitted to relax in a recumbent position and each cornea is anesthetized using several doses of a topical anesthetic, such as tetracaine (pontocaine). A target for fixation is of help and we have found that the image of the filament of a National head light projected on the ceiling works very nicely. The lids are then retracted with the fingers of one hand and care being taken that no additional pressure is made on the globe. Foot plate and plunger assembly are then placed on the cornea in a vertical position. The initial scale reading is noted. The instrument is allowed to rest freely on the cornea for four minutes. Scale readings should be taken every thirty seconds. These can be plotted versus time and the best fitting straight line drawn through them.

Interpretation: For interpretation the scale values may be converted into terms of pressure and volume change and submitted to calculation by formula or, more simply, the interpretation of the scale readings may be obtained from a conversion chart, such as those worked out by Grant[3] and Ballintine[4]. C, the co-efficient of facility of aqueous outflow, is given in units of cubic millimeters per minute per millimeter (Hg) of intraocular pressure.

Changes During Tonography: When the tonometer is placed on the cornea there is a *deformation* of the surface of the cornea, a *flattening* of the part of the cornea that comes in contact with the foot plate of the tonometer and a *localized indentation* of the cornea due to the impingement of the plunger. New space is found for the displaced intraocular fluid by the *distention* of the eyeball wall. The relative resistance of the eyeball wall to distention causes a risk in intraocular pressure. If the tonometer remains on the cornea the intraocular pressure gradually falls because the elevation of pressure by the tonometer squeezes aqueous out of the eye at an increased rate. As the pressure falls the tonometer foot plate and plunger indent the cornea more deeply and the sclera contracts. The process continues until a steady state is reached where the intraocular pressure is the same as it was before the tonometer was placed on the eye. The aqueous humor is flowing out of the eye at the same rate as it is being formed and the sclera has returned to its original volume.

The Normal Tonogram: The rhythmic swinging of the tonometer indicator needle is visible with both the mechanical and the electronic tonometers and is attributable to the ocular pulse. When a recording system is used with the electronic tonometer the plateau effect described by Kronfeld as well as definite larger and slower wave-like variations in intraocular pressure are visible. By recording simultaneous tonographic and diastolic blood pressure tracings, Becker and

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*Presented before the Section on Eye, Ear, Nose, and Throat at the eighty-seventh annual session of the Medical Association, Biloxi, May 10-12, 1955.

Friedenwald[5] have demonstrated that the slow waves are synchronous with phasic variations in the diastolic blood pressure. The normal range of values for C as determined by Grant was 0.11 to 0.44, by Kronfeld 0.14 59 0.56. Kronfeld has reported an atypical response encountered in a number of undiseased eyes characterized by an unusually low ocular tension. A constant instead of a slowly increasing tonometric reading during the tonographic period was followed by a striking drop in tension which started immediately after the removal of the tonometer.

It should be recognized that there are a number of possible sources of error in this form of examination. Care must be taken to properly select the initial tonographic reading so that it is not distorted by a steep rise in diastolic blood pressure which is noted in some patients with the application of the tonometer nor can too much importance be attached to a single isolated determination. Numerous assumptions are made whose validity has not at this time been established, such as the assumption that there is no change in the rate of flow of aqueous during the examination, the assumption that the volume of blood in the eye remains constant during the examination, the assumption that the episcleral venous pressure remains the same during tonography as in the undisturbed eye, the assumption that the facility of outflow in the eye at the higher pressures induced by tonography is the same as that in the undisturbed eye, and, finally, the assumption that variations from average value for corneal curvature and scleral rigidity do not affect tonography. If the sclera is abnormally distensible the difference between the initial and final scale readings will be less than for an eye with normal scleral rigidity and as a result the apparent I. O. P., C, and F, (steady state flow of aqueous) will be less, presenting a false appearance of hypotony and decreased aqueous formation. If the sclera is abnormally rigid the difference between the initial and final scale readings will be larger than for a normal eye and as a result the apparent I.O.P., C. and F. will be greater presenting a false appearance of glaucoma and increased aqueous formation[4]. With relation to scleral rigidity Grant[3] has called attention to the fact that the value for C, determined from the conversion chart, is fundamentally a function of the rate of aqueous formation and the facility of outflow. A difference in the relationship between rate of formation and facility of outflow distinguishes glaucomatous from non-glaucomatous eyes. Now with abnormality of scleral rigidity the errors introduced into estimation of rate of formation and facility of outflow are fortunately both in the same direction so that the error in the relationship between these factors is automatically minimized. Furthermore, as Friedenwald[6] has stated, if the tonometric readings with two different plunger loads come out to reasonably close agreement, the reading can be accepted as valid and ocular rigidity can be assumed to be close to the average normal. Scleral rigidity may be considered normal unless the difference between the measurement made with the 5.5 and the 10 gram weight is consistently greater than two millimeters of mercury. Tables have been published from which a numerical value for ocular rigidity can be determined by comparison of readings with the 5.5 and 10 gram weights[7]. As stated by Becker and Friedenwald, in spite of the errors involved in the calculations and the difficulties in theoretical interpretation, tonography has proved of great aid in diagnosis and evaluation of therapy of glaucoma.

Wide Angle Glaucoma: Thus far tonography has been most useful in the study of wide angle glaucoma. There is a marked decrease in facility of aqueous outflow in almost all cases, the coefficient usually being less than 0.10. As pointed out by Grant, the eye must not be under the influence of miotic drugs when tonography is being employed diagnostically. Many instances have been observed in which complete shift from the glaucomatous to the normal range has been accomplished by miotics in eyes with confirmed glaucoma. This is considered the strong indication that the glaucoma is adequately controlled. Eyes which may be classified as low tension glaucoma appear to fall into several groups. In the first, there is progressive cupping and loss of visual field despite normal intraocular pressure on repeated examinations. In these cases C (co-efficient of facility of outflow) and F (the steady state flow of aqueous) are normal and the cause of the disease does not lie in the pressure regulating mechanism. Another group has been described by Grant in whom cupping and field changes are stationary. In this group both C and F are reduced and it is suggested that these patients previously had elevated tension and that atrophy of the ciliary body has caused the intraocular pressure to become normal by reducing the formation of aqueous humor. Becker and Friedenwald state that tonography provides an almost unique method for suggesting the diagnosis of low tension glaucoma in another group of cases. These cases have a constantly decreased facility of outflow even at the normal levels of intraocular pressure. Several of the cases which they reported had unilateral decreased facility of outflow and normal tension in one eye and exhibited elevated intraocular pressure in the other eye. Others had bilaterally decreased facility of outflow in spite of normal tension in each eye. However, the diagnosis of glaucoma was confirmed by finding a glaucomatous field loss by positive results in the water-drinking test or by subsequent elevations of tension. Concerning the use of the water-drinking test in conjunction with tonography, Becker and Friedenwald report that in most instances there was an elevation in pressure with an associated induced decrease in facility of outflow. Several cases were found in which the tension remained normal but facility of outflow was diminished to levels below normal. They felt that the tonographic picture of "low tension glaucoma" had been induced in these eyes by the provocative test. Three of the patients in this group had open angle glaucoma in the other eye. Two patients with unilateral "low tension glaucoma" had typical glaucoma field defects. They feel that this type of case can be most readily detected by combining water drinking with tonography. They also report that there were a significant number of cases of wide angle glaucoma in whom the pressure was normalized by medical treatment without improvement of facility of outflow. They feel that from the tonographic point of view these eyes were changed to the findings in "soft glaucoma." They were able to improve the facility of outflow to within the normal limits by increasing the frequency of concentration of the miotic used in some of these cases. It is their contention that those eyes in which facility remains decreased after miotic therapy should be followed more closely and should receive more intensive therapy.

Narrow Angle Glaucoma: Tonographic studies carried out during acute episodes of acute congestive glaucoma revealed a very marked reduction in facility of aqueous outflow. During remission the values for facility of aqueous outflow approached those of normal in some cases. However, in other cases even during remission there was impairment of aqueous outflow. This seemed to depend upon the extent of peripheral anterior synechia. This impression was confirmed by gonioscopic examination. In our opinion the presence of a reduced facility of aqueous outflow in a case of narrow angle glaucoma in remission would indicate the use of a filtering operation, possibly in combination with a basal iridectomy rather than a basal iridectomy alone.

Secondary Glaucoma: We have had the opportunity of studying one case of glaucoma capsulare in which iridectomy and lens extraction had been carried out in an effort to control the glaucoma. At the time of the examination the tension in the eye was 63 millimeters of mercury and C was 0. We have studied one case of increased intraocular tension associated with cellulitis of the orbit. The tension at time of tonographic study was 45 millimeters of mercury and C was 0.04. We have studied one case of glaucoma secondary to uveitis. At the time of the examination the tension was 40 millimeters of mercury and C was 0.05. Mansheim[8] reports a case in which a patient had glaucoma secondary to uveitis in each eye. The outflow co-efficient was below normal but the rate of production of aqueous appeared to be high. After cyclo-diathermy the tension became normal. The outflow of co-efficient was still abnormally low and the production of aqueous was reduced. He also reported two children with Sturge-Weber syndrome exhibiting unilateral glaucoma. Both patients exhibited an outflow co-efficient in the normal range with a relative high production of aqueous. In a case of buphthalmos marked reduction in the facility of outflow and very low net rate of production of aqueous was noted.

Surgical Therapy: In our series of cases the only patients who have had simple iridectomies or peripheral iridectomies have been those in whom the facility of aqueous outflow was normal during remission. Measurement of facility of aqueous outflow following surgery revealed it still to be within the range of normal. Filtering operations (peripheral iridenclesis) done in cases of chronic non-congestive glaucoma, have been found to markedly improve the facility of outflow.

SUMMARY

This form of examination has proved itself to be of value in the early diagnosis of wide angle glaucoma, especially when combined with provocative tests such as the water-drinking test. It has also proved of value in determining the effectiveness of treatment, both medical and surgical. It has thrown some light on the etiology of the various glaucomas.

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A New Concept of The Etiology of Atherosclerosis

H. N. Hamilton, M. D.
Scott, Miss.

The importance of the discovery of the etiology of atherosclerosis is self evident upon consulting the death statistics of recent years. In addition, the morbidity caused by atherosclerosis or arteriosclerosis in the form of decreased ability to work, long-term illnesses, and general dependence of the atherosclerotic on society and the individual family is becoming a problem of major significance in our society. However, of more importance to the clinician is the ability to make an early diagnosis before the sequelae of arterial occlusion and/or insufficiency develop, and having some efficacious method of preventing or curing the process.

The theories of the atherogenesis of arteriosclerosis are legion, changing with time and better methods of chemical and clinical examinations. In truth all the presently advanced theories probably are correct in part and are not mutually exclusive but probably complementary. At one time, for example, it was considered that atherosclerosis was a mild chronic inflammatory process; then there was an aging theory that some extracellular colloids in the arterial intima provided the fundamental alteration that led to the accumulation of lipids and thus to the development of atherosclerosis. Then there was considerable attention given to the importance of the metabolic activities of the arterial intima at the sites where atherosclerosis develops. At the present time the theory which definitely dominates and is most strongly supported by experimental and actual data is that there is an aberration in the chemical and physico-chemical make up of the serum lipids and that the lipoproteins are fundamental to the pathogenesis of the lesions[1].

Recent studies[2] have demonstrated that many patients with coronary heart disease have an elevated concentration of all the lipid constituents of the serum. However, the rise in serum lipid phosphorous is not proportional to the rise in serum cholesterol, so that an increase in the cholesterol-phospholipid molar ratio results. Some investigators[3] feel that the serum phospholipids may act as colloidial stabilizers and emulsifying agents, holding the serum cholesterol in solution.

However, the fact that examination of fresh atherosclerotic lesions in rabbits by Ninehouse and Hirsch[4] revealed all fatty fractions appearing in about the same proportion as in the circulating serum; eventually most of them becoming acted upon by tissue enzymes, metabolized and removed; and cholesterol, for which there are no tissue enzymes, remain behind and act as a foreign body producing a foreign-body reaction which, after all, is an atheromatous lesion. This possibly means that some physical process is present. If this be true, then atherosclerosis begins as a deposition of the phospholipids as they appear in the serum and by some physical peculiarity of the lipoprotein molecule the lipoproteins are not removed from the arterial intima. The latter possibility will be the subject of this discussion.

Gofman and associates[5] have isolated from human sera by ultra centrifuge methods certain lipoproteins of varying size and densities, the levels of which correlated fairly well the incidence of myocardial infraction. The particles most closely correlated with the incidence are those SF 10-20 and those SF 20-100 in size. Labecki, Zinn and Griffith[1], beginning the work at the

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*Presented at the semi-annual meeting of the Delta Medical Society, October, 1954.

University of Southern California and later Labecki continuing at the Heart Disease Control Unit of Mississippi, found the levels of certain fatty particles which can be made visible in dark field microscopy to correlate even better with the incidence of myocardial infarction[6,7]. These particles are called chylomicrons if their size is 0.3 micron in diameter or larger. The study of Labecki on 77 myocardial infarction cases and over 200 control cases comparing the chemical approach; that is, cholesterol levels, ultracentrifuge studies, and dark field microscopy, showed again an excellent correlation between cholesterol levels and incidence of myocardial infarctions. He also showed the occurrence of certain large fatty particles in fasting serum and an increased incidence of myocardial infarction. The least valuable of the three was the Gofman test employing ultracentrifuge.

The test, applicable to any hospital or clinic with an able technician, as advised and refined by Labecki, consists of counting the visible lipoprotein molecules by dark field microscopy. The larger molecules (over 0.3 microns) and the smaller molecules (less than 0.30 microns) and counted and a ratio of these chylomicrons to total lipoprotein molecules is figured. A ratio over 40 is considered significant and conducive to the production of atherosclerosis. In fact, the mean ratio of all normal persons, except females over 65, is 28, and the mean ratio of all atherosclerotic individuals was 42-43. The range of the ratio in atherosclerotic individuals is 38-50. The particles 0.3 micron in diameter and larger are the ones thought to be involved in the production of atherosclerosis. Three tests are probably needed to diagnose a case of potential or an actually existing case of atherosclerosis, namely total cholester, chylomicron to lipoprotein molecule ratio, and ultra centrifuge study.

Delving further into the problem of the etiology of this disturbance of fat metabolism one may surmise that the liver has considerable influence since the development of atherosclerosis can be prevented in experimental animals fed cholesterol by the concomitant administration of lipotropics. Labecki and associates demonstrated that intensive lipotropic therapy can decrease the level of chylomicrons—that is, large fatty particles—in individuals suffering from atherosclerosis as well as control individuals[7]. Paul White in his latest edition of *Heart Disease*, 1951, remarks that extreme alcoholism apparently reduces the possibility of atherosclerosis. It was also found that in certain subjects with extreme liver cirrhosis due to alcoholism there was an unusually low level of large fatty particles[1], the elevation of which correlated so well with the occurrence of myocardial infarction.

It is obvious, therefore, that one should be conservative about the etiology of atherosclerosis and adopt a middle-of-the-road attitude, namely, that certain factors predispose to the development of atherosclerosis, such as hypothyroidism, diabetes, (these acting through hormonal and metabolic influences); that hypertension probably mechanically predisposes to the enmeshment of the lipid particles in the intima, but that the main presdisposing factor is faulty fat metabolism, probably a hereditary factor.

As for treatment of the potential atherosclerotic, at the present time, since it has been demonstrated[7] that lipotropics (methiscol 11 caps T I D PC) do lower the number of large lipoprotein molecules in human subjects, this medication is justified. However, a minimum of 1.66 gms. choline, 0.5 gms. inositol and 0.66 gms metionine daily must be administered over a period of four weeks before any decrease in the chylomicron-lipoprotein ratio can be demonstrated. At the end of twelve weeks there will be an even higher degree of decrease of the ratio. As to the fraction of the lipotropics that is effecting the change, investigation is going on at the present to determine if one isolated fraction alone is accomplishing the result. It is hoped that one such fraction will be found and a definite medication will become available for use. It is to be especially noted that the total cholesterol will not be lowered by the above medication, but only the physical make-up of the fatty molecules.

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THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

UNIVERSITY HOSPITAL ACTIVATED

Dr. David B. Wilson, director of the University Medical Center in Jackson, advises that the University Hospital was activated July 1,1955. Facilities are limited so the number of patients which can be admitted at present must be limited also. Additional beds will be made available as rapidly as equipment can be secured and personnel, particularly nurses and dieticians, can be found.

Patients admitted will be classified either as Service or Private. Service patients are those without private physicians and who will pay part of their hospital charges or none at all. They will be under the medical care of the Hospital Resident Staff. Private patients will be under the care of a practising physician who is a member of the medical staff of the hospital.

Dr. Wilson sets forth the plan for admission of patients as follows:

If a referring physician wishes to have a private case admitted to the hospital and he is not a member of the staff, he should refer the case to a member of the staff who in turn will contact the hospital's admitting office.

To have a Service Patient admitted to the hospital the referring physician should contact the resident on the service involved. It is preferable to have this contact in the form of a letter with as much information as possible concerning the patient. This will permit the resident to schedule the patient properly for admission and adequate data for the referring physician upon the patient's discharge. Emergencies will require a more immediate contact.

MEDICINE TO KEEP US YOUNG AND ACTIVE

Dr. L. H. McDaniel of Tyronza, Arkansas, created a stir with his chairman's address before the American Medical Association. He was chairman of the Section on General Practice. He dipped into the future of medicine with some revolutionizing observations and predictions. An outline of his address appeared in the press and over the radio around the world. Dr. McDaniel, a practitioner, lives in a small town, where he renders a genuine service in medicine and in citizenship.

NEW APPROACH TO THE DISEASED PANCREAS

You will read with grateful interest in this issue of the journal the paper of Dr. Jonathan E. Rhoads of Philadelphia. Successful surgical dealing with the pancreas may be in the near offing. Early diagnosis is the big challenge according to Dr. Rhoads—especially when the cancer is in the tail of the pancreas.

DR. I. G. DUNCAN

We regret the going of Dr. I. G. Duncan of

Memphis on July 24, who died at the age of seventy years. He died of a heart attack while returning from church. A native of Oxford, Mississippi, and a graduate of our two-year medical school there, he was one of Memphis' best known urologists. He taught in U. T. Medical School for many years, and did his part to build the good medical atmosphere we find in Memphis. He was a member of the Union Avenue Baptist Church.

DR. J. M. ACKER

The Northeast Mississippi Medical Society deeply regrets the passing of Dr. James M. Acker of Aberdeen. He was a past-president of the State Medical Association and served the Northeast Mississippi Society efficiently as its secretary for a number of years. As long as his health permitted, he was active in organized medicine. He was a man of fine personality, culture, and refinement.

News and Comment

PRESENTS HISTORIC MSMA GAVEL

Dr. Lamar Bailey, MSMA president, presented the historically significant Goldberger gavel to AMA officers on June 5 at Atlantic City. Participating in the ceremony are (l to r) Dr. J. P. Culpepper, AMA delegate; Dr. Bailey; AMA Board Chairman (now president-elect) Dwight Murray; AMA President Walter B. Martin; and Dr. John F. Lucas, AMA delegate. The gavel was made from timbers of the biulding at Jackson where Dr. Joseph Goldberger made his initial findings on the cause and cure of pellagra.

WHAT'S UP

A new pamphlet on Medical Education . . . entitled "What's Up With Our Medical Schools?" is now available from the AMA through the State Medical Society. Answering that "everything's up—enrollments, graduates, facilities, and finances!" . . . the pamphlet was prepared to refute many of the erroneous rumors that tend to veil the truly remarkable progress being made by medical schools in the U. S. today. It is excellent information for your patients to take home and read.

ABSTRACTS FROM PEDIATRIC LITERATURE

HARVEY F. GARRISON, M.D.

The human source of tuberculous infection in children: B. Briggs, R. S. Illingworth and J. Lorber. Lancet 1:263-266 (Feb. 5) 1955 (London, England).

Briggs and associates state that in England the mortality from tuberculosis in childhood has fallen rapidly in the last few years, largely as a result of improved methods of treatment, but the fall in tuberculosis morbidity has not kept pace with the fall in mortality. They made a detailed investigation of the source of infection in 564 children with active intrathoracic or generalized tuberculosis. The children were either inpatients in the Children's Hospital at Sheffield, or outpatients attending the tuberculosis contact clinic in the Children's Hospital. A really adequate search (one in which the whole household was investigated, together with persons who, on the basis of the history, appeared to be likely sources of infection) was made in 401 of the 564 children. In the 401 adequately investigated cases the source of infection was found in 327 children (81.5 per cent). It was found in 95.9 per cent of 73 children under one year of age, in 86.1 per cent of 101 children aged one, in 84.6 per cent of 117 children aged 2 to 4, and in 64.5 per cent of the 110 children aged 5 to 14. In some children there were multiple contacts. Most of the sources of infection were within the household, for over 75 per cent of the contacts were parents or other persons living in the house. The authors emphasize that it is important to report all cases of childhood tuberculosis, so that an intensive search for the source of infection can be made. This enables the infected adult to be treated and other child contacts to be protected from infection by BCG or other means. It is also important to examine all child contacts immediately when an adult is found to have tuberculosis, so that tuberculin-negative children can be segreagated until they have been protected by BCG. All adults with symptoms that might be due to tuberculosis or who may be a source of infection should be subjected to roentgen examination of the chest. Adults whose tuberculosis is supposed to be inactive should receive continued supervision and should be regarded as potentially infectious if they are in contact with children. Children with a negative tuberculin reaction should be excluded from visiting wards and sanatoriums for tuberculous patients. Adults with tuberculosis should be instructed in the infectivity of their condition and in elementary hygiene.

COMMENT

The experience indicated in this article is quite familiar to pediatricians. There are several features in this experience noted which is just such as has been seen by this writer on many occasions. If the public as a whole could be made to realize the great danger in contacts with tuberculosis, many cases could be avoided in children. While writing this comment on this abstract, my mind goes from one case to another in my experience where little children became exposed to persons who had tuberculosis, and some for only a few times, yet, they contracted the disease. Thus it can be seen the tremendous importance of keeping children away from such contacts. Another point to be considered and emphasized in regard to this article, is the great advance in the modern treatment of tuberculosis in the last ten years. The newer methods of treatment have reduced the mortality enormously, and this is very encouraging. The two most important revelations are in the prevention by avoiding contacts, and in the modern treatment has been so effective in the past ten years.

ANNOUNCEMENTS

Maurice P. Segal, M.D., announces the opening of his office at 965 Madison Avenue, Memphis 4, Tenn. Practice limited to Urology.

Henry Jackson Kellum, Sr., M.D., Henry Jackson Kellum, Jr., M.D., Joseph Leslie Kellum, D.D.S., wish to announce the association of Agrippa Spence Kellum, M.D., Surgery, and William Carl Kellum, M.D., general practice of medicine, at the Kellum Clinic, Tupelo, Miss.

GOOD NEWS FOR DIABETICS

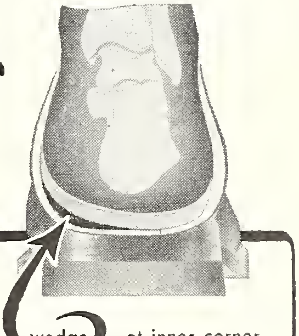
The Diabetic's Cookbook is being published this month. This unique book brings to the diabetic more than 250 recipes for foods and beverages that he can eat and enjoy. Each receipe is written and arranged so that it can be fitted quickly into the individual diabetic's diet prescription. Indeed The Diabetic's Cookbook is such a practical cookbook for diabetics that Dr. Charles H. Best, one of the discovers of insulin, has written the introduction.

The Diabetic's Cookbook is published by the Medical Arts Publishing Foundation, 1603 Oakdale Street, Houston 4, Texas. The price is $6.50.

POSTGRADUATE COURSE IN PEDIATRIC ALLERGY

New York Medical College, Flower and Fifth Avenue Hospitals announce a post-graduate course in pediatric allergy under the direction of Bret Ratner, M.D., Professor of Clinical Pediatrics and Associate Professor of Immunology, November 2, 1955 - May 31, 1956. There will be thirty sessions, Wednesdays, 9 a.m., 4 p.m., fee $300.00.

Applicants must be certified in pediatrics or have the requirements for certification. Enrollment limited. Apply: Office of the Dean, New York Medical College, Fifth Avenue at 106th street, New York 29, N. Y.
Copies can be obtained from your bookstore or by writing directly to the publisher.



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Woman's Auxiliary

OUR NEW PRESIDENT

Mrs. O'Ferrall

Back in 1927 it was very unusual to find a married interne, for it was against the rules in most hospitals to accept an interne who was married. In the early spring of 1927 a young senior in medicine at the University of Pennsylvania was accepted for an internship at Touro Infirmary in New Orleans. On June 14, 1927, Carter O'Ferrall and Bertha Hines were married in the First Presbyterian Church of Jackson. They had both lived in Jackson almost all of their lives and were both from Mississippi. Millsaps College was the place where they first met during their freshman year. Bertha went to Randolph Macon her junior year and because her family were in west Texas for two years, she attended the University of Texas her senior year graduating there.

It was as the wife of an interne and a resident that Bertha learned to make the sacrifices necessary to keep a happy home for a medic.

Jackson is the only place she and Carter have lived since he began the practice of medicine.

The three O'Ferrall children, Martha Helen, Alice, and Richard Carter (Dick), learned to adjust their lives to a doctor's uncertain hours.

It was with the help of "Tempie," the colored nurse, who lived on the yard and nursed and cooked for eighteen years, that Bertha was able to keep up outside activities such as Central Medical Auxiliary of which she was president one year. She was active in volunteer work for the Junior League which at the time was sponsoring a free clinic for babies. While the children were small she also taught in the Junior Department of Sunday School. At the present time she is international leader and Bible teacher in her church.

Marcy, the elder daughter of the O'Ferralls, is married to Dr. John R. Bise. Alice is married to Frank Reilly, Jr., and they are stationed in Norfolk where Frank is an ensign in the navy. Dick will be a junior this fall at Ole Miss where he is in Navy Reserve Officers Training. The two little grandsons, Johnny and Carter, are the pride and joy of their doting grandparents.

Bertha says she is looking forward to her activities this year as president of the Woman's Auxiliary and she anticipates with pleasure the opportunity to meet and learn to know better of the Auxiliary members throughout the state.

NORTHEAST MISSISSIPPI AUXILIARY

Although the June place of meeting was remote for almost everybody in the Northeast Auxiliary, and the day was damp, the attendance pleased everybody. And the charm of Tishomingo Park captivated the group, who assembled in one of the cabins on the hill above the lodge. The Iuka doctors' wives had added flowers to the rustic decor, arranged punch bowl and cups for afternoon refreshments, and prepared entertainment. Mrs. Harry Cosby presented Mrs. Curtis, who gave a review of *My Heart Lies South* in so delightful a mood, the entire afternoon was keyed to its refreshing informality.

After punch and assorted cookies, members discussed the state meeting, welcomed four new members, planned a more active participation in the year ahead.

Mrs. Carter O'Ferrall of Jackson, state president, and Mrs. Joseph B. Rogers of Oxford, president-elect, were announced for their official visits at the September meeting, which will be held in Aberdeen.

"Wise men are instructed by reason; men of less understanding by experience; the most ignorant learn by necessity."

The Tonsil and Adenoid Question As Seen by the Laryngologist

LAWRENCE R. BOIES, M.D.
Minneapolis, Minn.

Since there is evidence that tonsil surgery was done 1,000 years B. C.[1], it occurred to me that here we are, nearly 3,000 years later, discussing the tonsil as a problem. I wonder if there is any other subject in medicine with so long a history, about which there is controversy today. That it is still a problem is obvious if one examines current medical literature. In the "Quarterly Cumulative Index Medicus" one finds that in the 10 years, 1942 to 1951 inclusive, there have been listed an average of over 100 papers per year concerning the tonsils and adenoids.

That it was a problem before the days of modern surgical anesthesia and technique is not surprising. That it should be a problem today, except for the injection of the idea of the possible relationship of tonsil and adenoid surgery to the incidence of bulbar polio, is not so easily understood. It could be that the following two reasons suggest the responsibility for the controversial aspects of the tonsil and adenoid situation: 1. The indications for tonsil and adenoid surgery in the ordinary practice of medicine is determined through superficial observation. Compare it in a sense to the all-too-current practice today of the hasty prescription of antibiotics. 2. The regard for this surgery as a minor procedure seems to justify its attempted performance by many who have not acquired skill in working in this area. These also could be the reasons for the poor end-results from tonsil and adenoid surgery in terms of expected relief from the situation for which the surgery was advised, the inadequate removal, and the morbidity associated with the operation. With these possibilities in mind, I would like to consider the aspects of this matter that apparently contribute to controversy by asking these three questions: 1. What are the present-day indications for tonsil and adenoid surgery? 2. What constitutes an operation that is skilfully and thoroughly done? 3. What are the hazards to this surgery?

PRESENT-DAY INDICATIONS FOR SURGERY

Since I completed a residency at the Massachusetts Eye and Ear Infirmary 24 years ago, I have performed tonsil and adenoid surgery, or tonsil or adenoid surgery alone, on about 4500 patients. A majority of these have been in children. In relatively few instances has adenoidectomy alone been performed. Rarely has adenoidectomy been done on an adult. Practically all of the children on whom I have operated have been referred to me by pediatricians. I believe that the level of pediatric practice is on a high plane in the city in which I work. This judgment is based on my observation of the intellectual curiosity these pediatricians exhibit and the continued interest on the part of most of them in pediatric teaching and research. A majority of them would be classed as conservative; one or two might have radical ideas. Out of this experience, I am inclined to list the indications for tonsillectomy and adenoidectomy in three simple situations that are easily understood. I believe that the pediatricians with whom I work would agree with me. Two of these indications are well defined and probably are acceptable to most clinicians. These are repeated attacks of tonsillitis, and hypertrophy of the tonsil or adenoid to the extent of obstruction.

In children who have several attacks of tonsillitis, the tonsils tend to enlarge; yet it is not common to find very large tonsils in spite of a negative history for tonsillitis. In adults who suffer recurrent attacks of tonsillitis, the tonsil may be of the small fibrous type, more or less continuously injected at the margins. When the palatine tonsil is hypertrophied to the extent of obstruction, it is usually very large. There is a nasal quality to the voice; mouth breathing is the rule; the child's appetite is poor; and usually there is a history of a tendency toward frequent upper respiratory tract infection, often in the form of tonsillitis. In some instances this same picture is the result mostly of adenoid hypertrophy alone and the tonsil is relatively small.

The third situation is not so clearly defined as the two indications just discussed. When there is continued evidence in a particular case that the tonsil harbors chronic infection as manifest by a

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purulent expression or excessive formation of caseous material, tonsillectomy should be considered. Then there is the concept of focal infection that has apparently undergone considerable clarification in recent years.[2] Extremes of thinking concerning this concept are not uncommon, but it is probably safe to say that a majority of the medical profession who treat diseases in which infection plays a role have a sane attitude toward this concept. This majority seem to reason that, when a disease in which infection may play a role exists and when evidence of persistent or recurrent infection is present in the tonsils, the surgical removal of this possible source of infection is logical if the infection cannot be promptly eradicated with modern drug therapy.

A SKILLFUL AND THOROUGH OPERATION

I stated earlier in this discussion that the regard for this surgery as a minor procedure seems to justify its attempted performance by many who have not acquired skill in working in this area. This performance on the part of the unskilled accounts for the fact that at least one in four tonsillectomies is not well done and one in two adenoidectomies is poorly performed. These errors in a more or less standardized technique are not so much the lack of knowledge of what should be done as a poor technique in doing it. It has been my observation that two circumstances contribute materially to these errors. One is that the operation is performed hurriedly, and the other is that there is a lack of clear illumination and visualization of the entire tonsillar fossa and of the nasopharynx.

A hurried technique often means inadequate hemostasis, and this in itself contributes to poor visualization. There seems to be a confidence on the part of some surgeons that bleeding vessels in a tonsillar fossa will contract, which confidence would be lacking with the same-sized vessel and degree of bleeding in an abdominal operation. Clear visualization of what is being done demands good hemostasis and good illumination. In many instances this illumination will only be obtained from a headlight or reflected light. The surgeon who depends on the overhead light of the operating room may find himself severely handicapped. This can contribute to a poorly performed operation.

The most hurried part of the operation has always been the adenoidectomy. I stated earlier that one-half of the adenoidectomies are poorly performed. The reason for this is that this surgery is done in an area that is difficult to expose. I was taught in my general internship to scoop out a central mass of adenoid, check the result with an examining index finger and let it go at that. When these maneuvers were completed, the patient was hurriedly turned over on his side or face with the head low, so that he could bleed into a basin and not aspirate blood into his trachea. Since then, I have learned that it takes time and patience to perform an adenoidectomy well—it often requires 15 to 20 minutes or more—and that the technique requires a systematic procedure of planned scoops with an adenotome or strokes with a curet, then sponge pressure for hemostasis, then exposure of the site for visualization, and often the removal of more adenoid tissue. Good hemostasis may require the application of hemostats and sometimes even sutures. A good adenoidectomy may require the use of special biting forceps, such as those designed by Meltzer, to remove hypertrophied masses of lymphoid tissue from the lateral pharyngeal wall and adjacent to the eustachian orifices.

THE BEST TECHNIQUE

The object of the operation is, of course, to accomplish a complete removal of the tonsils and adenoids with a minimum amount of trauma and adequate (which means complete) hemostasis. Whatever method accomplishes this for a particular surgeon must be considered to be the best technique. There was an era in which the so-called Sluder technique was popular. The original technique, I believe, called for deep nitrous oxide anesthesia, a rapid guillotining of the tonsils, and an equally rapid scooping out of adenoid tissue. The elapsed time for the surgeon's actual operative maneuvers approximated a minute in the demonstrations that I have seen.

I prefer a guillotine with a medium dull blade for the removal of the soft tonsils of young children. It has the advantages of leaving a smooth fossa and produces the minimum amount of trauma; however, its use does not shorten the time of operation when good hemostasis is obtained after the removal of each tonsil. There also may be the matter of removing a prominent plica triangularis, which may have to be done with scissors or snare or both, with additional attention to hemostasis. Sometimes, too, a remnant of actual tonsil is left because the guillotine cuts across a prominent nodule or misses an adherent portion of the tonsil at the upper pole or at the base. These may be overlooked with the "superspeed" technique.[3] It is certain that adenoidectomy cannot be adequately done in many instances when there is speed and no careful inspection after hemostasis.

HAZARDS OF OPERATION

I once knew a pediatrician who stood far to the left in his antipathy toward tonsil and adenoid surgery. When a mother asked about the possible need for this surgery in her own child, this pediatrician could effectively halt her inquiry by saying, "Mother, do you know how many children died in this country last year from tonsil operations?" I might further qualify this particular pediatrician's judgment by adding the information that he administered cold vaccine to most of his patients who were subject to upper respiratory tract infections.

There has been mortality from tonsil surgery. Occasionally I hear of such a tragedy in my community or in the state. In some instances it is due to the anesthesia, in others to hemorrhage. I have often heard the nurse anesthetist remark that the most difficult anesthetic to give and manage well has been the one for tonsil and adenoid surgery.

The advent of intratracheal anesthesia and the technique that has developed for this has, I know, eased my concern over the anesthetic in that there have been eliminated any periods of embarrassed respiration and anoxia, and the control of secretion or any blood in the trachea is made very easy and certain.

The two objections to this method of administering the anesthetic have been the possibility of trauma to the vocal cords and the fact that the presence of the tube produces an obstacle to work around. We have found that selection of a tube of the proper size—one that does not fit tightly into the glottic space, and one that is made of an inert material, plus its introduction without trauma—eliminates any laryngeal reaction. There are adapters for its connection that allow a positioning of the tube to one side or other of the mouth so that it is practically out of the way

With these advantages, control of the anesthetic will never be a problem. The nurse anesthetist experiences little difficulty in learning the management of the anesthetic through a tube Dr. Ralph Knight, former president of the American Society of Anaesthesiologists, has often made the statement that a surgeon who cannot insert an intratracheal tube should not be doing tonsil surgery.

Hemorrhage from tonsillectomy or adenoidectomy occurring within the first day of operation is more often the result of inadequate hemostasis at the time of surgery than any unusual situation related to the patient, or the condition of his tonsils and adenoids. Often, inadequate hemostasis means carelessness, speed, or lack of skill and experience. Slight bleeding about a week following the surgery is not uncommon, in my experience, and in most instances needs no special treatment. It is said to be the result of the separation of the membrane which normally coats the fossae, or in the nasopharynx to localized infection, or the separation of sutures.

In recent years a new hazard has been publicized —the vulnerability to poliomyelitis. Much has been written about this, some of which is controversial. It is not within the purpose of this discussion to consider the pros and cons of this controversy. It has been my contention that tonsil and adenoid surgery should be avoided in the presence of an epidemic of any disease. In recent months a new angle to this relationship has been stated to the effect that anyone of any age is more vulnerable to poliomyelitis and particularly to bulbar form if his tonsils and adenoids are missing.[4] This is said to be true even though the tonsils and adenoids had been removed several years previously.

The first two hazards can be overcome by obvious means. The third, if time proves it to be one, will pass when poliomyelitis is controlled. Until then the indications for tonsil and adenoid surgery will undoubtedly receive the more thoughtful consideration that is justified and the clinician will weigh the advantages in the total health picture against what hazards are faced when the operation is skilfully done with the full advantages of modern anesthesia. I suspect that since there seem to have been some advantages to the surgical treatment of tonsils for approximately 3,000 years, these advantages will continue in properly selected cases until all of the problems of upper respiratory tract infection and their sequelae are eliminated.

SUMMARY AND CONCLUSIONS

Surgery of the tonsil, discussed for nearly 3,000 years, is still controversial, probably first because the indications for its surgical treatment are often based on superficial observation and secondly because there is a morbidity and even mortality associated with it, because it is attempted by many who have acquired skill through training and experience in working in this area. Tonsillectomy and adenoidectomy is justified in cases of repeated attacks of tonsillitis or adenoid infection, hypertrophy to the extent of obstruction, and when there is evidence of persistent chronic tonsillar or adenoid infection. A clean tonsillar fossa with the minimum of trauma to the pillars and muscular bed and thorough hemostasis are the marks of a skillful, carefully performed tonsillectomy. A thoroughly performed adenoidectomy requires good exposure of the nasopharynx, time, hemostasis, and visualization of the end-result. The hazard of hemorrhage is minimal if care and thoroughness are used. The anesthetic risks of periods of anoxia, uncontrolled aspiration of secretions into the lung, and other anesthetic hazards are practically eliminated with the best modern intratracheal method. The hazard of increased susceptibility to bulbar poliomyelitis and of the greater possibility of death if the disease is contracted "call for sober judgment with regard to the desirability of tonsil removal except for excellent clinical indications. The nonremoval of tonsils may be as hazardous to a person or more so than their removal, for the chance of contracting poliomyelitis in a clinically recognizable form is not great."

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The Surgical Consideration of Pelvic Disease*

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This discussion is not intended to go into any lengthy details of accepted surgical procedures relating to pelvic disease, but rather to discuss without controversy some newer aspects relating to pelvic surgery.

Twenty-five years ago Dr. Walter Alvarez of the Mayo Clinic presented a most interesting discussion before the American College of Surgeons in which he strongly condemned the injudicious pelvic operations in the psychosomatic female. This unfortunate individual still represents a large group of gynecological cases seen today and probably comprises ten per cent of women presenting symptoms of pelvic disorder. It is an accepted fact that so-called tension states can produce certain cardiac diseases, duodenal ulcers, and related gastro-intestinal disturbances. It can also produce, in itself, all variations in the menstrual cycle from menorrhagia to amenorrhea, accounts for a high percentage of dysmenorrheas and probably ten per cent of certain cases of sterility. Therefore, it is necessary that a gynecologist avail himself of a working knowledge of psychosomatic diseases before he advocates pelvic surgery. It is truly a pathetic sight to see these individuals with an abdomen, battle-scarred from repeated incisions, plus numerous diagnostic curettments still seeking relief from pelvic pain. First, an ovary, and appendix, then a suspension, then postoperative adhesions and so on until finally in an attempt to give relief a hysterectomy is done. A large percentage of these individuals are then left hopeless cripples, both physically and mentally. Each time they bend, sit, or attempt to have marital relations, actual pain is produced, as their pelvis is technically frozen and nothing more can be offered except repeated injections of estrogenic hormones and the individual is classified as "going through the change of life." Certainly, if we males were subjected to the same procedures we would more often be subjected to the change of life. If the end results of pelvic surgery are to be uniformly good, surgical technique or "how it is done" is of equal importance to "what is done."

This is qualified by assuming that an operator is fully capable of recognizing surgical pathology as it exists in the pelvis. Surgical skill must also go hand-in-hand with the knowledge of physiological function of the affected part. It is also to be recognized that what might work in one operator's hand may not accomplish the same results in another. We are all merchants—merchandising good health—and unless our end product is good, public criticism is certainly justified. Undoubtedly, there are more pelvic operations than any other surgical procedure. The paramount question is how many are justified.

Increased knowledge has changed many older concepts of pelvic procedures, yet there is an unlimited expanse of knowledge still to be gained.

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Recently Dr. Emil Novak of Johns Hopkins stated that there was no such thing as the "change of life." After observing a large number of women in the forty-year group on whom justifiable total hysterectomies, which included bilateral salpingo-oophorectomies have been performed, the older concept of ovarian function in this group becomes highly speculative. If these patients are assured of the necessity for such surgical procedure and if they have a comfortable pelvis afterward, our experience has shown that less than one per cent will manifest any so-called "hot flashes" and those with a normal marital life previous to the onset of pelvic disease will experience equally as good, if not better, marital relations than prior to pelvic surgery. It has also been noted that symptoms commonly associated with the menses, such as increased response to nervous stimuli and the retention of body fluids, will also be found at the same cyclic period after total hysterectomies. It is plausible that the pituitary gland may exert a greater influence upon one's general well being than is commonly assumed. Over fifty women between the ages of nineteen and twenty-five, presenting a bilateral extensive endometriosis, have been subjected to complete removal of the pelvic viscera and have been followed for a period of over five years. None of these individuals has experienced marital difficulty or so-called "hot flashes." Needless to say that they were not operated upon and told to forget it. A high percentage of our patients are intelligent and if given a sensible and plausible explanation of their condition will be relieved of certain mental uncertainties that, without a doubt, produce a high percentage of psychosomatic symptoms, so frequently attributed to the lack of estrogens. It is, therefore, necessary to know our patient's psychological attitude as well as to know the pelvic pathology with which she may be afflicted.

No pelvic operation should be contemplated with only one pelvic examination. Pelvic tumors, especially questionable ovarian enlargements, will vary greatly from time to time and are probably influenced by the cyclic changes of the menstrual cycle. Standard text books on gynecology frequently state that fibroids do not enlarge after cessation of menstruation. This is certainly true in a large percentage of patients, but numerous cases have been seen in which rapid growth has taken place years after the menarche.

So-called suspension operations, the bread and butter operation of the hungry and itching pelvic surgeon, is becoming less frequent and could be almost completely abandoned except in a small percentage of young women presenting a true procidentia and in whom these symptoms are definitely relieved by the wearing, for a short period of time, a well-fitted pessary. Unless a physiological type of support is produced the patient can frequently be most miserable. Certainly it is tragic to see a uterus pulled up against the anterior abdominal wall and fixed there by shortening the round ligaments in such a manner as was done twenty-five years ago. Recently a twenty-six-year-old female was seen who had been operated upon four years ago and her ovary had been removed and her "womb" suspended. Prior to this surgery she had had what could have been ovariotory-pelvic pain. Since operation she had had severe acquired dysmenorrhea necessitating sedation, marked dyspareunia and two diagnostic curettements. At operation the omentum was adherent to the anterior abdominal wall, the uterus was pulled to the left and was fixed to the undersurface of the old incision, from the shortened round ligaments. A hydro-salpinx was present in the remainder of the right tube. Although it is a well-known surgical axiom that a patient will survive poor pelvic surgery, it certainly is not a justifiable excuse. It is certainly plausible to attribute a percentage of embolic phenomena to the customarily executed pelvic procedure. In no other portion of the human body would we mass ligate, clamp, and crush so much tissue and expect good results, as is frequently done in the female pelvis.

After a definite surgical condition is reasonably ascertained, it is necessary that surgical skill begin with the incision. Safe anesthesia and adequate exposure are essential in any operation. If an incision is needed that should extend to the umbilicus, a more stable incision can be made by extending the upper end lateral to the umbilicus sufficiently to give adequate fascia on the mesial side for easy closure. The fascia should be incised somewhat to the left of the midline so that all incised tissue will not fall within the same plane. Hemostasis is essential and each bleeder should be individually ligated. Hemostats, large or small, can be a liability if they are allowed to accumulate in a wound. An adequate evaluation of the pathological process will determine the necessary surgical procedure. Adhesions to any pelvic viscera should be removed and unless an extensive malignant process is present a definite line of separation can be found and all the pelvic organs completely freed before any attempt is made to begin the operative procedure. If any ovary is to be removed the broad ligament is spread with Babcock clamps and the ovarian vessels exposed by perforating the broad ligament. These vessels are doubly ligated without clamping and allowed to fall into their normal position; not tied into the lower pelvis. The corresponding tube is always removed along with the ovary. If the uterus is to be removed, the round ligament is ligated and the broad ligament split both anteriorly and posteriorly exposing the pelvic lymph nodes, if necessary. After the vesicular flap is made, the dissection is carried down laterally exposing the uterine vessels adequately. These vessels may be ligated without fear of retracting into the broad ligament and in full view. In this manner no clamp is placed on any tissue that is to be left in the pelvis. If an ovary is to remain, the ovarian vessels that originate from the uterine are individually ligated, allowing the ovary to be placed in normal position: not sutured into the lower pelvis. The same procedure is carried out on the opposite side. After ligation of the uterine vessels all clamps except those necessary for handling the uterus are removed from the pelvic viscera allowing better vision for the subsequent steps. The posterior peritoneum is split laterally over the insertion of the utero-sacral ligaments and these structures identified by a cotton suture, to be used later. The cervical branch of the uterine vessels is ligated with the cardinal ligament. As the urinary bladder is dissected free the vesico-uterine fascia is visualized. Further dissection will expose the vaginal cuff as an individual layer. The vaginal mucosa is incised as close to the cervix as plausible and should be closed as a separate layer. The vesico-uterine fascia is closed and the base of the utero-sacral ligaments are anchored into this fascia. The round ligaments, with their questionable support, are then sutured into the vaginal cuff without strangulating these structures. The cardinal ligaments are also anchored into the vesico-vaginal fascia which in itself helps prevent the vault of the vagina from becoming dome-shaped or shortened. The split leaves of the broad ligaments are then closed without exposed raw surfaces. If an ovary remains, the broad ligament is closed up to the ovary, fixing the ovary in its normal position. The bladder flap of peritoneum is utilized to cover the remaining raw surfaces. All blood is removed from the pelvis by saline irrigation before the abdomen is closed in layers.

Large fibroid tumors can be removed by this technique, making the procedure safer, by eliminating a large number of clamps, which impede mobility and obstruct vision of normal structures. In this manner it should be almost impossible to injure the ureter or urinary bladder or get into intractable bleeding from uterine vessels blindly clamped and cut under tension. The blood supply to large ovarian tumors may be exposed and ligated in the same manner, making this procedure much safer.

Pelvic pathology has not been discussed, as it is assumed that any surgeon capable of doing pelvic surgery should be familiar with the numerous pathological processes involving the female oekvus. Before the abdomen is closed a careful survey should be made of all abdominal viscera, if this examination did not precede the pelvic operation. Needless to say, this evaluation should be carried out as soon as the abdomen is opened, if a malignancy is suspected. The abdominal wall should be closed in layers and with care.

Intelligent nursing care postoperatively is imperative. Mortality and morbidity can be greatly reduced by sensible, careful guidance through the early convalescent period. Analgesia without sedation, systematic changing of position, and early ambulation contribute to an early convalescence.

Hospitals should require and the surgical staff demand, that all tissues be submitted for pathological examination, preferably without sectioning or mutilation, allowing the pathologist better to evaluate the specimen.

A right-handed surgeon will find it most convenient to work from the patient's left, as this position allows for greater dexterity and is less tiring on the surgeon.

SUMMARY

Before any pelvic operation is undertaken a careful evaluation should be made of the patient's complaint, with particular emphasis on the psychosomatic relationship, both as to the cause and also the effect pelvic surgery may produce. It is essential that the surgeon be scrupulously honest regarding the necessity for such operation and also his ability to execute the necessary procedure with lasting good effect.

Embolic phenomena can conceivably be produced by mass ligation and by creating an abnormally supported pelvis.

The same surgical skill and care should be used in pelvic surgery as in abdominal surgery. Pelvic surgery should create a happy patient, both with herself and her family. After all, our patients are human beings who desire to live happily.

DISCUSSION

Dr. Gus A. Rush, Jr. (Vicksburg)—No truer words have ever been spoken than those of Dr. Walter Alvarez of the Mayo Clinic echoed by Dr. Wolford, and I am sure that it behooves all of us to listen to the words of wisdom therein contained. It is certainly a thing of pity to see a young woman with her abdomen littered with surgical scars, the reason for which in most cases was never clearly explained her but she was just told that she needed an operation. This does little to allay her fears of pain and cancer, and at the least abnormal sensation in her pelvic area, which would be well tolerated by a more stable person, she runs for help and if she is not helped by your counsel, will eventually end up with further surgery and scarring. Whenever we have our cars repaired we feel that the service-man will give us an invoice telling just what was done and even though some of us don't know what some of the hieroglyphics are we feel better in that he has told us something about the "case." In the same manner, I feel that the patient is entitled to know what was wrong, what was done to correct the wrong and just what to expect in the way of future outlook. Just recently I was confronted with a case of a woman who was operated on in an army hospital while her husband was in service. A Caesarean section was done but she was not told whether the appendix was removed or not. Since she had missed one menses and had a slight spotting with the next expected period, it was suspected that she was pregnant but she also had rather severe pain in the right lower quadrant and it would have helped tremendously to have known if the appendix was out. The hospital where she was operated on had forwarded her records to a record center, which in turn referred us to another center at which point it was found that the surgical record did not include removal of the appendix. The symptoms subsided and a laparotomy was not performed, which might have damaged the fetus if in utero. She made an uneventful course with a repeat section near term and it was found that the appendix did show multiple adhesions with narrowing of the lumen. I could certainly have spent a more comfortable day awaiting the search for the records.

I find myself at some disagreement with Dr. Wolford in regard to the so-called "hot flashes" associated with the normal or surgical menopause as I feel that they do occur and are in most cases demonstrable, most especially under periods of stress and strain and are to some degree proportional to the amount of the stress and strain applied although the more unstable the personality, the more the symptoms. It is more than a coincidence that they so often respond to small doses of estrones orally along with a few kind words of assurance and occasionally with small doses of phenobarbital. I have made it a practice to have an interview with every patient having extensive pelvic surgery in which there will be a surgical menopause and discuss with her the possibility of some vasomotor instability due to a cessation of the menses and that something could and would be done if symptoms presented. So many of the well-meaning neighbors will beat you to it if you don't hurry and will so firmly implant in her mind that she is "ruined," will lose their husband, and will be doomed to suffer untold agonies since "Aunt Agatha" had the same operation and wound up in Whitfield.

In regard to the physical procedure of pelvic surgery, I am sure that Dr. Wolford is quite right in his dissection of the vessels of the broad ligament with ligation without the use of clamps to avoid crushing of the tissues, but I must admit that I, and I am sure others among us, are somewhat fearful of wide dissection into the broad ligament for fear of hemorrhage. The replacement of the ovaries into their normal abdomino-pelvic position is rightly stressed as it is so often the case that they are sutured to the top of the vaginal cuff above the round ligaments and remain there in a most painful position especially during intercourse and often lead to further surgery due to the interference of blood supply.

Observations in the Management of the Primiparous Breech at Term in Labor*

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MANY EXCELLENT reports have been made concerning breech delivery with its inherent hazards and complications. Statistics vary greatly between one clinic and the next. Certainly experience is a larger factor in the latter.[1] Few physicians are able to approach a breech delivery without some degree of concern. Most reports deal with the over-all breech problem and the corrections are made for prematurity, abnormality, multiple pregnancy, multiparity, etc. In reviewing some of these surveys, it was of interest that little acknowledgement has been given to the factors which occur during the management and delivery of the breech and which may have influenced the outcome or caused some alteration in the management of the case. To arrive at any such criteria would require the evaluation of many cases which had certain common denominators. The primiparous breech at term seemed to offer the best source of study for this purpose. On the obstetrical service at Bellevue Hospital in New York City, all deliveries, with a very occasional exception, are performed by the resident and intern staff. From January 1, 1944, through June 30, 1954, there were 232 term primiparous breech deliveries and these records have been reviewed. This number of cases can be statistically considered only a sample. It is planned, however, to continue this review when more cases are available at this hospital, and it is the hope that a similar review can be made in other centers so that a final compilation can be made which will offer some valuable standards in the management in labor of the term primipara with a breech presentation. Approximately 72 per cent of the cases under review had been seen in the antepartum clinic on at least one occasion and in 52.7 per cent of these breech presentations had been found antepartum.

During the period covered in this review certain changes have developed in the antepartum evaluation of these patients: external versions are done less frequently, x-ray pelvimetry is obtained more liberally, and with antibiotics the vaginal exam is more readily performed in late pregnancy.

On admission to the hospital, 60 patients or 25.8 per cent were thought to have presentation other than a breech. In a few cases this error was not detected until delivery was imminent.

The charts and graphs are self-explanatory and again the reader is reminded that except for documentation the number of cases is statistically invalid.

FIGURE I - Age of Patients

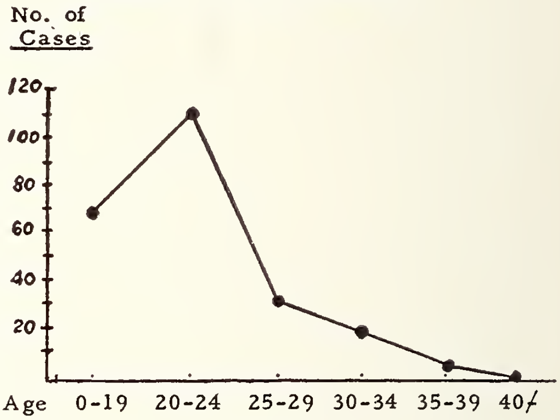

FIGURE II

Duration of Pregnancy
All pregnancies at term by date or weight of baby (5 lbs)

Antepartum Care	
Clinic	167
Non-Clinic	65

Pregnancies

	No. of Cases
1. Breech presentation, noted in clinic	88
2. Anemia	45
3. Syphillis	22
4. Rh negative	21
5. False Labor	20
6. Pre eclampsia	18
7. Unexplained vaginal bleeding	12
8. Tuberculosis	10
9. Heart Disease	6
10. Hypertension	5

The age of the patients under study (Figure 1) shows the majority of cases to be under 25 years of age with 110 patients 20-24 years of age.

All pregnancies were at term as determined by gestational dates or by the weight of the infant at birth. (Figure II) One hundred and sixty-seven of the patients studied had attended the hospital prenatal clinic on at least one occasion.

The major antepartum complications are listed in Figure III with the number of cases in each category. Other complications occurred but only in occasional cases and are not listed here.

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*Presented before the Section on Ob.-Gyn. at the eighty-seventh annual meeting of the Mississippi Miss.

FIGURE IV—Complications of Labor

	No. of Cases
1. None	149
2. Misinterpretation of presentation on admission	60
3. Premature rupture of membranes	20
4. Uterine Inertia, Primary and Secondary	19
5. Prolonged Labor	17
6. Laceration of vagina (3°-1)	12
7. Prolapsed cord	11
8. Laceration of cervix	6
9. Short Labor	3
10. Post partum hemorrhage (over 500 cc's)	3
11. Amniotic sac infection	1
12. Contraction ring	1

FIGURE V—Hours of Labor Prior to Admission

	No. of Cases
False or prodromal	17
None	50
0 - 4 hours	68
4 - 8 hours	53
8 - 12 hours	23
12 plus hours	21

Quality of Labor on Admission

No labor	46
False or prodromal	19
Early, mild, poor or fair	41
Moderate	28
Good, strong or active	98

FIGURE VI—Status of Membranes at Time of Admission

	No. of Cases
Intact on Admission	127
Ruptured at or before Admission	105
Time of Rupture	
Before onset of labor	44
Onset to early labor	101
Late labor (3 finger dilation)	80
No rupture (Caesarean Section)	7

FIGURE VII—Estimated and Actual Weight of Infants

Estimated No. of Cs.	Weight Range	Actual Weight No. of Cases
9	Small-below 5-½	15
32	Small to average 5-½ to 6-½	90 90
124	Average or Term 6-½ to 8	105
8	Large - over 8	21
59	Not estimated or Recorded	1

FIGURE VIII—Presentation and Position

	No. of Cases
Type of Breech:	
Frank	157
Double Footling	24
Single Footling	25
Complete	19
No Diagnosis	7

Position:

LSA - 72	RSA - 40
LSP - 22	RSP - 15
LST - 43	RST - 35
DSA - 1	No diagnosis - 4

FIGURE IX—Station or Level of Presenting Part on Admission.

	No. of Cases
Floating and dipping	74
S-O to S-3	113
Below spines	36
Not Recorded	9

Complications of labor are listed in Figure IV and again only the more frequent complications are listed with the exception of complications related to fetal mortality or increased risk to the infant.

Evaluation of labor at the time of admission is listed in Figure V, and the status of the membranes on admission and the time and stages of labor at the time of rupture of the membranes are listed in Figure VI.

Attempts to estimate the size of the baby were made on admission in 173 cases and these estimates are listed in Figure VII, along with the actual birth weights of the babies. It has long been known that estimation of fetal size is inaccurate by our present methods except to the extent of small, average and large categories. In the breech presentation estimation is usually less accurate and especially in the smallness and largeness of the infants.

Sixty of the 232 cases were thought to have vertex presentation on admission. The final diagnosis of position of the infants is listed in Figure VIII, along with the type of breech.

The station of the presenting part at the time of admission is listed in Figure IX.

Vaginal examination with evaluation of the pelvis and presentation were recorded as performed in 166 cases before delivery. Seventy-nine of these were performed within three hours after admission. Delivery was imminent at the time of admission in 13 cases.

X-ray pelvimetry, using the Caldwell-Moloy method, was made in 147 cases and 18 of these were made after delivery. In recent years only patients with a very large bony pelvis did not have pelvimetry. The types of pelves, classified on x-ray findings, are listed in Figure X. The recommendation made on the basis of the x-ray findings alone are listed in Figure XI. Recommendations were made on the basis of x-ray findings as to the adequacy of the pelvis for vaginal delivery and in 32 cases, Caesarean section was recommended for average size infant presenting as a breech. In 10 of these, 32 cases vaginal delivery was performed and in 3 of these 10 cases fetal death occurred. All three of these cases had good fetal heart tones on admission to the hospital. There was one fetal death in the other 22

FIGURE X—Type of Pelvis by X-Ray (147 cases)

	No. of Cases	
Gynecoid	78	
Gyn. anthropoid	6	
Gyn. platypelloid	4	
Gyn. android	2	90
Android	3	
And. gynecoid	10	
And platypelloid	6	
And. anthropoid	1	20
Platypelloid	12	
Plat. gynecoid	9	
Plat. android	1	
Plat. anthoropoid	1	23
Anthropoid	7	
Ant. gynecoid	5	
Ant. platypelloid	1	13
Unclassified		1

FIGURE XI—Recommendations made from X-Ray Evaluation of Pelvis.

	No. of Cases	
Ample Pelvis	96	
Section average breech	32	
Ample small to average	2	
Good for small baby only	3	
Possible inlet difficulty	1	
Midplane difficulty	1	
Delivery from below probably safe	1	
Guarded	1	
Difficult for breech	1	
None	9	147

FIGURE XII—Initial Plan of Management

	No. of Cases	
None (recorded)	43	
Delayed because of vaginal bleeding	5	
Imminent delivery	22	
Deliver vaginally	117	
X-Ray pelvis and probably deliver vaginally	18	
Caesarean Section	27	232

FIGURE XIII—Total Labor Including Caesarean Sections.

	No. of Cases
0 - 12 hours	110
12 - 18 hours	50
18 - 24 hours	30
24 - 30 hours	26
30 - 48 hours	11
48 - plus hours	5
Prolonged labor	12
Short labor	3

FIGURE XIV—METHOD OF DELIVERY OF INFANTS

	No. of Cases
Assisted breech	153
Breech extraction	38
Spontaneous breech	2
Caesarean section	39
	232

FIGURE XV—Method of Delivery of Aftercoming Head

	No. of Cases
Mauricean-Smellie-Veit	124
Piper forceps	49
Wiegand Martin	6
Praque	2
Spontaneous	5
Craniotomy	1
Not recorded	6
	193

cases delivered by Caesarean section and this case will be discussed later.

In an effort to determine a change in the plan of management of these cases an attempt was made to tabulate the initial plan of management in each case as best it could be determined from the records. These recommendations are listed in Figure XII. Of the 27 cases in which Caesarean sections were recommended seven cases delivered vaginally. One of these 7 patients refused Caesarean section and had an uneventful vaginal delivery. There were 3 fetal deaths in the remaining 6 cases in this group (2 stillbirths and 1 neonatal death) and in all three cases the fetal heart tones were good until the second stage of labor.

The total duration of labor in all cases including those with Caesarean section are listed in Figure XIII. The average duration of labor in this group was 15 31/60 hours and the average duration of labor in Caesarean section cases was 20 6/60 hours.

The methods of delivery are listed for the 232 cases in Figure XIV. The methods of delivery of the aftercoming head, in the cases delivered vaginally, are listed in Figure XV.

There were 39 Caesarean sections with an incidence of 16.8 per cent. The total and observed labors in these cases are listed in Figure XVI. Three of these cases had a second stage of over one hour. Anesthesia used in Caesarean section was preferably spinal, as used in 30 of the 39 cases. The immediate condition of infants delivered by Caesarean section revealed 34 of the 39 infants to be in good condition. Four babies were listed as in poor condition at birth, three of these responded well to resuscitative measures and there was one neo-natal death. One infant was stillborn. These two deaths will be discussed later. Twenty-five of the sectioned patients were seen in the prenatal clinic, eleven patients were referred to the abnormality clinic and in seven of the eleven, Caesarean section was recommended.

There were twenty-four stillbirths and neonatal deaths, an incidence of 10.3 per cent. Two cases

FIGURE XVI—Total and Observed Labor with Caesarean Sections

Total Labor Hours	No. Cs.	Obs. Lab. Hours	No. Cs.
None	2	None	2
0:01-11:59	13	0:01-5:59	9
12:00-17:59	8	6:00-11:59	11
18:00-23:58	4	12:00-17:59	4
24:00-29:58	4	18:00-23:49	4
30:00-48:00	4	24:00-29:59	2
48:00	4	30:00-48:00	5
		48:00	2

FIGURE XVII—Corrected Fetal Mortality

	Total Cases	Total Deaths	% Deaths
Total	232	24	10.34
Less Prolapse Cord (4)	228	20	8.77
Less Pre-eclampsia (3)	225	17	7.64
Less Maceration (3)	222	14	6.31

FIGURE XVIII—Arbitrary breakdown of duration of observed labor
(*10 hours)
—10 hours

Duration of Obs. Labor	Total No. of Cases	Caesarean Sec. No. of Cases	
More than 10 hrs.	84	18	20.2
Less than 10 hrs.	148	21	14.2

Stillbirths	Neonatal Deaths	Total Mortality	Percentage Mortality
8	5	13	15.5
9	2	11	7.4

had no fetal heart on admission. There were sixteen other stillbirths and six neonatal deaths, three within one hour of birth and three between 4-48 hours.

An excellent report by Heaton and Guyer[2] reviewed all breech deliveries at Bellevue Hospital from 1934 to 1944. Their uncorrected fetal mortality was 31 per cent in 708 breech deliveries. By eliminating non-viable and premature births, congenital anomalies incompatible with life, twins, maceration of fetus, and other less frequent occurrences, they were able to report a corrected fetal mortality of 4.5 per cent in 352 cases. In the primiparous patients the corrected fetal mortality was 7.4 per cent. In choosing the term primiparous breech for study certain of these corrections were eliminated at the start. However, the mortality rate in this series is significantly high. Certain conditions, such as toxemia of pregnancy, placenta previa, premature separation of the placenta, and prolapse of the umbilical cord are not peculiar to breech presentation and should be included in the review. The primary aim at the outset of this report was to study the management in labor and the unfavorable fetal mortality served only as a stimulus. There were no maternal deaths in this relatively small series of cases.

Ward and Sellers[3] in 1950 reported on "Controversial Issues in Breech Presentation," in which such topics as external version, fundal pressure and the extended head, breech extraction, and other variables in management were discussed. Of these only external version will be commented on here.

Pomerance and Daichman[4] in 1952 reported on 716 term primiparous breech deliveries and showed that fetal mortality increased sharply with large babies (over 9 lbs.), labor over 48 hours, and in prolonged rupture of the membranes (over 48 hours). They also pointed out that the mortality in footling and complete breech was almost twice that in frank breech presentations. They reported a corrected fetal mortality of 4.2 per cent and a Caesarean section rate of 13.3 per cent.

Reported fetal mortality in primiparous breech deliveries shows wide variations from around 1 per cent[5] in private case series to 9 per cent[6] in ward and teaching services. Most reported series today utilize standards for correcting the fetal mortality. In order to conform with this policy Figure XVII shows the remaining factors by which the mortality is correctable. The corrected fetal mortality for this series is 6.31 per cent.

Returning to our initial purpose in this study, a more detailed evaluation will be given to those cases in which fetal death occurred, and certain criticisms will be presented relating to duration and management of labor. Critical review of all cases revealed that only 78 of the 232 cases were generally well handled. It is obvious that hindsight has a definite advantage and judgments made at the time cannot be equally judged in reflection. However, sixty cases were thought to have a vertex presentation on admission to the hospital. There was unnecessary delay in vaginal examination prior to delivery in eighty-one cases. Ninety-one cases showed in review some factor which could be considered poor obstetrical management. Many of these probably resulted from poor recording of observations so that little pointed criticism can be offered.

The 232 cases were divided into groups which were observed in labor for more than ten hours and those which were observed less than ten hours, including those which were admitted and delivered within ten hours (Figure XVIII).

There were eighty-four patients observed in labor for more than ten hours, and in this group there were eighteen patients (20 per cent) delivered by Caesarean section. There were thirteen fetal deaths (5 neonatal deaths) or a 15.5 per cent fetal mortality. There were 148 patients observed less than ten hours in labor and in this group 21 Caesarean sections were performed for an incidence of 14.2 per cent. There were eleven fetal deaths or an incidence of 7.4 per cent.

Thirty-three patients were seen in the abnormality clinic for evaluation of the bony pelvis with breech presentation. Eleven of these were subsequently delivered by Caesarean section, seventeen by assisted breech delivery and five by breech extraction. There were four fetal deaths in this group and all are worthy of comment.

M. D. 45045-44—Patient was in labor 8½ hours prior to admission. Abnormality clinic and x-ray evaluation showed an ample pelvis. A primary inertia was neglected and the patient was allowed thirty hours of observed labor with a four-hour second stage. A breech extraction was attempted and a contraction ring was encountered and a Caesarean section was performed. The baby was alive but in very poor condition and died within 24 hours.

A. G. 49188-47—Patient was admitted prior to onset of labor for evaluation as a primiparous breech. Clinic evaluation of the pelvis revealed a poor pelvis for a breech delivery and Caesarean section was recommended. X-ray pelvimetry was interpreted as presenting possible inlet difficulty and a fair midpelvis. An attempted external version prior to labor in the hospital was unsuccessful (complete breech). For some unknown reason, labor was allowed to start and progress. An assisted breech delivery was performed without recorded difficulty. The baby was in critical condition, however, and expired within 24 hours. Total labor 13 44/60 hours.

M. R. 28660-49—Patient in labor 7½ hours prior to admission. Antepartum abnormality clinic x-rays were interpreted with recommendation to consider Caesarean section with an average size breech. Vaginal exam on admission revealed a conjugate diameter of 11.0 cm., convergent sidewalls, and a Caesarean section was recommended. Patient progressed in labor and Caesarean section was delayed. The fetal heart was lost in the second stage and a breech extraction of a stillborn infant was performed.

J. G. 17215-50—Patient in labor 6 hours prior to admission. Antepartum abnormality clinic x-rays were interpreted as showing only a fair midplane and outlet and Caesarean section was recommended for an average size breech. Patient was almost fully dilated at the time of admission and vaginal exam confirmed the x-ray interpretation of a poor pelvis for a breech. The fetal heart became slow and irregular before surgery and a stillborn infant was delivered by Caesarean section. The baby weighed 6 lbs., 1 oz. One hour and eight minutes elapsed from admission to surgical delivery.

A review of the total observed labor in the 24 cases with fetal death shows eleven cases with less than ten hours of observed labor and thirteen cases (54.16 per cent) with more than ten hours of observed labor.

The fetal heart was recorded as good in fifteen of the twenty-four cases immediately prior to delivery or Caesarean section. In only seven of the twenty-four cases was the delivery described or recorded as difficult.

There were four fetal deaths associated with prolapse of the umbilical cord. These are listed with a brief abstract of management and labor:

Prolapsed cord—4.

M. P. (19) 43131-51—Fetal heart good on admission. Membranes thought to be intact. Nine hours of labor prior to admission. Initial vaginal examination performed 1¾ hours after admission and prolapsed cord found. Pulsations ceased following attempt to redeposit cord. Single footling breech presentation was found and the cervix was two fingers dilated. Patient delivered a stillbirth from LSA position weighing 5 lbs., 7½ oz. three hours later.

K. T. (23) 6108-52—Five and one-half hours labor prior to admission. Membranes ruptured on admission, fetal heart good. Vaginal examination 1½ hours later disclosed prolapsed cord with cervix four fingers dilated. Attempts to redeposit cord unsuccessful. Patient uncooperative under pudendal block anesthesia. Pulsations in cord became irregular. Double footling breech presentation in LSA. One and one-half hours later patient was delivered of a stillborn infant.

L. R. (23) 23285-52 — Three-quarters-hour labor prior to admission. Membranes ruptured 24 hours prior to admission. Fetal heart good on admission. Vaginal examination on admission revealed prolapsed cord with the cervix three fingers dilated and pulsations ceased during examination. Single footling breech in LSA. A 6 lbs. 1 oz. stillborn infant was delivered ten hours later.

C. G. (20) 50244-48—Two and one-half hours labor prior to admission. Membranes ruptured on admission. Patient followed by rectal examination only, until foot presented at introitus four hours after admission. At this time fetal heart first recorded as slow. Patient to delivery room immediately. On vaginal examination cord pulsations stopped. A breech extraction was performed. Baby 6 lbs., 3 oz. could not be revived. Small cervical laceration sutured. Complete breach LSP.

In the four cases presented above, two and possibly three of the babies might have been salvaged if facilities for immediate Caesarean section had been available and utilized. In the last two cases where cord pulsations ceased during examination, no mention was made in the charts as to whether or not an attempt was made to redeposit the cords. It is difficult otherwise to explain the sudden cessation of the fetal heart after 45 minutes of labor with ruptured membranes in Case 3 and after four hours of observed labor with ruptured membranes in Case 4.

In seven additional cases complicated by intrapartum prolapse of the cord, living infants were delivered. Six of these were footling presentations and the seventh was a complete breech presentation. Four of the seven cases were thought to have a vertex presentation on admission and in two of the four cases a breech presentation was not detected until the end of the first stage of labor. In one case there was slight vaginal bleeding and for this reason vaginal examination was deferred. In one of the seven cases an attempt was made to redeposit the cord through a four-finger dilated cervix and was unsuccessful because cord passed between the legs of the infant. This patient was scheduled for Caesarean section but labor progressed rapidly and patient was delivered by extraction. The other six cases were deliverable when the cord was found prolapsed. Two were delivered by extraction and four by assisted breech. Possibly the case with the four-finger dilation and the cord between the legs should have been sectioned if facilities had been immediately available, in spite of the good outcome of the case.

Two of the cases had no audible fetal heart on admission. One mother was in shock at the time of admission and a massive amniotic sac infection was found. The cervix was fully dilated and a breech extraction of a macerated infant was performed. This patient had received no prenatal care. Her postpartum course was one of gradual improvement. She remembered little of the time before and after delivery but thought she had been in labor for at least 24 hours and that her membranes had been ruptured for at least two days. The other patient with no audible fetal heart on admission had attended the prenatal clinic and was thought to be one month overdue for delivery. In the clinic her pelvis was described as ample for a small-to-average baby and breech presentation had been noted on her last two clinic visits. Antepartum x-ray pelvimetry showed an ample pelvis. No recorded versions were performed or attempted. Patient had 1½ hours of labor prior to admission with intact membranes. Patient stated that she had felt no movement for 24 hours. Labor progressed well with delivery of a 5 lb., 10 oz. (not postmature) macerated infant. The umbilical cord was wrapped twice around the infant's neck.

Of the 24 cases of fetal mortality, fifteen mothers had attended the prenatal clinic, and in nine of these breech presentation had been noted at least once in the last five weeks, prior to labor. Only two attempted external versions were recorded in the 24 cases, and both were unsuccessful. Both were attempted in the hospital before the onset of labor. In one the infant presented as a frank breech and died a few minutes after a difficult breech extraction. Clinically the pelvis of the patient was thought to be borderline for a breech delivery, and x-ray pelvimetry showed an apparently ample gynecoid pelvis. Progress in labor was good with a total labor of 14 51/60 hours. The breech extraction was performed after a second stage of 1 26/60 hours with no progress. The other patient in whom the external version was attempted was admitted from the prenatal clinic for evaluation regarding possible elective Caesarean section because of a borderline pelvis with a breech presentation. The decision was made with some disagreement to deliver vaginally. The attempted version was unsuccessful with the baby presenting a complete breech. Labor progressed uneventfully and patient was delivered as an assisted breech after a total labor of 13 44/60 hours and a second stage of one hour. Slight difficulty was encountered with the aftercoming head and this was delivered with Piper forceps. The baby was sluggish, it responded poorly to resuscitative measures and died within twenty-four hours.

Of the four remaining neonatal deaths, one patient was admitted to the hospital at the end of a 20½-hour first stage of labor. She was delivered easily as an assisted breech twelve minutes later. A flaccid baby could not be resuscitated and PM revealed osteogenesis imperfecta but no other abnormality.

One patient was allowed to labor under observation for 26 hours and when a breech extraction was attempted, a contraction ring was encountered. There was then a delay of over an hour getting to the operating room and at Caesarean section a very sluggish baby was delivered. The baby responded poorly to resuscitative measures and died within 24 hours.

One patient was admitted 1½ hours after onset of labor with ruptured membrane. Breech presentation was noted, but no vaginal or x-ray evaluation of pelvis was made. Baby was delivered as an assisted breech after a total labor of 18 55/60 hours and a second stage of 3 13/60 hours. Much bloody mucous was aspirated from the nasopharynx and trachea but the baby died within a few minutes. Post-mortem exam showed hemorrhage into the left adrenal gland and incomplete expansion of lungs.

The last neonatal death case was admitted 5½ hours after the onset of labor with intact membrane. She had had no prenatal care. Vaginal exam and x-ray pelvimetry interpreted the pelvis as ample. Patient delivered easily as an assisted breech after total labor of 22 43/60 hours and a second stage of 1 12/60 hours. Baby died within 24 hours.

The remaining twelve fetal deaths occurred intrapartum. Seven of these twelve patients had attended the prenatal clinic. Four of the seven were known to have breech presentation on at least one clinic visit. Seven of twelve were observed in labor for over ten hours and four of the twelve had prolonged labor (over 30 hours). Five of the twelve had a second stage of over one hour and in three of these the second stage was over two hours. In four of these five cases the fetal heart was good in the early second stage and in only two of these cases was a breech extraction performed. One patient was admitted at the end of the first stage and in the prenatal clinic Caesarean section had been recommended for breech presentation. A delay of 1 8/60 hours was encountered in admission and preparation for Caesarean section. The fetal heart was slow and irregular immediately prior to section. The question of whether or not extraction should have been attempted could be raised because the baby was small normal in size (6 lbs., 1 oz.). In eight of these twelve intrapartum deaths the fetal heart was lost in the second stage, three in the late first stage and one in the early first stage. Once fetal death had occurred, there was no reason to rush the delivery as long as the condition of the mother was good and progress satisfactory. Five of these twelve cases were thought to have a vertex presentation on admission.

There were nine successful external versions performed in the 167 clinic patients. Seventeen attempted external versions were unsuccessful. It was not the policy to routinely perform external versions. The question of whether or not external version should be performed is still very much in debate. Certain contraindications to external versions exist and these include uterine scars, bleeding in the last trimester of pregnancy, multiple pregnancy, and possibly severe hypertension[6,7,10]. Dr. Fell reported in the Lancet in 1953 on 82 successful external versions in 102 patients[6]. These versions were done with the patient under anesthesia. His corrected fetal mortality in this group was 2 per cent. The corrected mortality for all uncomplicated breech deliveries during the same period of study was 9 per cent. In this country, many schools teach that anesthesia should not be used for external versions and one of the primary reasons for stopping an attempted version is pain experienced by the mother[7]. Certainly a significant percentage of successful versions, however, do not hesitate to perform additional external versions in this group. Many patients will be found to have breech presentations occasionally during the 28th to the 36th week, however, many of these cases spontaneously revert to a vertex presentation[8]. It would appear that the only way to accurately evaluate the external version would be to alternate cases of similar gestations, age, and parity, performing a version each time breech presentation is detected in the one group and merely observing the other.

Probably the optimum time for performing the external versions is between the thirty-fourth and thirty-sixth weeks[3,7,9]. Great care is necessary in observing the fetal heart and the mother, before, during and after the version. Some obstetricians recommend obtaining a flat x-ray of the abdomen before a version to determine fetal attitude[6].

If from the preceding material we can arrive at an optimal standard of management of the breech presentation in the primiparous patient perhaps the results will justify our efforts.

1. Pelvic mensuration by vaginal examination should be performed early in the pregnancy to clinically evaluate the pelvis as a birth canal.
2. Abdominal examination should be performed on each antepartum visit in the last trimester of gestation with careful evaluation of the presentation.
3. External versions may or may not be performed depending on the individual obstetrician and the individual patient. A flat x-ray of the abdomen should be made prior to external version.
4. X-ray pelvimetry should be made in any patient with a breech presentation who does not have a large roomy pelvis and probably in all primiparous breech patients.
5. In a patient who has a borderline pelvis by clinical evaluation and/or x-ray pelvimetry, elective Caesarean should be performed prior to the onset of labor at or near term. Certainly any patient with a small or abnormal pelvis should have a Caesarean section.
6. With the onset of labor or rupture of the membranes a patient should be hospitalized and examined vaginally.
7. If cord presentation or a prolapse of a pulsating cord is detected, Caesarean section should be performed unless the patient is deliverable and suitable for immediate vaginal delivery. Many hospitals are now set up for emergency Caesarean sections in the delivery room and this would offer maximum salvage.
8. This group of patients require very close observation in labor and especially in late labor.
9. Stimulation of labor has not previously been commented on, however, prolonged labor shows a definite increased fetal mortality and desultory labor should be stimulated provided the accepted criteria for stimulation are met.
10. At or near the end of the first stage, the patient should be moved to the delivery room and prepared for immediate delivery.
11. Fetal heart auscultation should be performed frequently.

12. General anesthesia should be available in the event an extraction is necessary although regional or local anesthesia will suffice for most assisted breech deliveries and certainly has less depressant effect on the baby and the mother. The cause of routine pudendal block appears to have merit in perineal relaxation needed during delivery.

13. An assistant should be present and scrubbed.

14. An episiotomy should be routine and the mesio lateral episiotomy is preferred to the midline in breech deliveries.

15. Assisted breech delivery is the method of choice if progress is good.

16. When the umbilicus is delivered, if a loop of umbilical cord is pulled down, fetal distress may be easily evaluated and the degree of tension or compression of the cord determined.

17. The Maurieau-Smelli-Viet or Wigand-Martin methods of delivery of the aftercoming head are preferable if no resistance is met.

18. Piper forceps or any low forceps should be used if any difficulty is encountered with the aftercoming head.

19. When the head is delivered, avoid cutting the pulsating cord too rapidly. The baby will be getting all the oxygen it needs from the mother and much of this oxygen is replacing a deficit created in the delivery.

SUMMARY

The records of 232 primiparous breech deliveries have been reviewed from the standpoint of management in labor.

The Caesarean section rate was 16.8 per cent.

The fetal mortality was 10.3 per cent and this can be corrected to 6.3 per cent.

Certain errors in management are presented.

A basic routine of management is outlined with the hope of decreasing fetal mortality in the primiparous breech at term.

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DISCUSSION

Dr. I. J. Newton (Greenville)—Doctor Ridgway has given a very complete, accurate and careful analysis of the subject. Always the thing that comes to my mind in discussion of the management of breech presentations is a distinction between conservatism and radicalism. Certainly, in some of the cases presented the watchful expectancy, which is usually considered conservative, proved definitely radical with the sacrifice of the babies. There is little one can add to Doctor Ridgway's discussion. However, I was interested in reviewing my own cases for the past three years. During this period in 1,060 deliveries there were twelve primiparous breeches whose ages ranged from sixteen to thirty-seven. Ten were at full term, one at seven months and one at eight months. The only antepartum complication was the sixteen-year-old who had a large hydrocephalic infant. The only real complication of labor was one case in which the cord prolapsed and the baby was lost before delivery could be accomplished or the cord replaced. Labor prior to admission varied from none to eight hours and the membranes were intact on admission in nine of the twelve cases. There were ten frank breech, one single footling and one double footling. Pelvimetry was adequate in all—nine of which were confirmed by x-ray. There were no Caesareans, six breech extractions, one assisted breech and five spontaneous deliveries. In five, forceps were used for the after coming head. The hydrocephalic, which I have mentioned, was terminated by trocar drainage of the hydrocephalus after spontaneous delivery to this point. The head then literally fell out. There was a fetal mortality of four cases, one being the hydrocephalic, one the prolapsed cord, one the seven months' premature, and one infant who had been known to be dead for several days prior to onset of labor, probably due to toxemia, giving a corrected fetal mortality of only the one case of a prolapsed cord that should have been salvaged. The duration of labor in this group varied from 5 to 17¼ hours with an average duration of nine hours and forty-eight minutes.

Most of the critical things in life, which become the starting points of human destiny, are little things.

The Diagnosis and Management of Paroxysmal Rapid Heart Action*

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I wish to review this afternoon the diagnosis and management of paroxysmal rapid heart action — the paroxysmal tachycardias — or stated simply, those conditions in which the heart suddenly becomes rapid. The suddenness of onset is important in distinguishing these attacks from ordinary sinus tachycardia which arises in the normal manner through the regular sinus mechanism and which results from fever, shock, hyperthyroidism, anxiety, and many other conditions. In the latter situations the onset of the tachycardia is gradual over a period of minutes or hours. In the abnormal mechanisms under consideration here the heart abruptly shifts in the interval of one heart beat from the normal sinus rhythm to the abnormal rhythm; in other words, the rate will abruptly change from say 70 per minute to 180 per minute without any period of gradual transition. There are several different cardiac mechanisms which may give rise to paroxysmal rapid heart action and it is often of practical importance to be able to distinguish between them, because the treatment and prognosis vary considerably in the various types.

Before discussing individually the various mechanisms involved there are a few general considerations worth reviewing. In approaching the problem of determining which type of mechanism we are dealing with when confronted with a patient having a paroxysm of rapid heart action there are certain things we attempt to determine each time. These are: first, the rate of the heart; second, the rhythm—whether regular or irregular, and if irregular, what type of irregularity; third, the response of the rate and rhythm to vagal stimulation by carotid sinus pressure, ocular pressure, vomiting, breath holding or other means. With these three basic pieces of simple clinical information we can determine in a high percentage of cases with considerable accuracy which condition is producing the paroxysm. Finally, we have the electrocardiogram which will settle the question completely and without any doubt. However, there are certain limitations to EKG diagnosis in these cases. Not every doctor's office is equipped with a machine. Even if one is available it is not readily available in the patient's home at three o'clock in the morning. It requires a great deal of scientific curiosity on the part of the physician at such a time to leave the patient, go to the office, get the machine, return to the patient's home, connect the machine, and run a tracing. Furthermore, such efforts may be entirely unrewarding because these things have a perverse way of suddenly reverting to a normal heart rate just a few minutes before everything is arranged for the tracing. Of course, in each of the cases the patient can be rushed to the hospital and a tracing made there, but this is often entirely unnecessary as many of the cases can be handled satisfactorily on an out-patient basis. Because of these limitations we need to know how to determine as much as possible about these conditions by purely clinical means.

PAROXYSMAL AURICULAR TACHYCARDIA

The commonest of the paroxysmal tachycardias is paroxysmal auricular tachycardia. The cause of this condition is not known—it occurs more commonly in hearts that are presumably healthy than in those which are the seat of known organic heart disease. Attacks may occur repeatedly over a period of many years without the patient developing any other signs of heart disease and without it having any detectable effect on health or longevity. The mechanism of production of auricular tachycardia is, as with most of these conditions, a subject of disputed speculation. The usual theory invoked to explain the origin of the tachycardia is the presence of an ectopic focus of impulse formation at a site in the auricle other than the sino-atrial node and that this other focus takes over impulse formation from the normal sinus pace-maker. There are, however, other theories such as the idea of parasystole and the circus movement theory. It does not appear worthwhile to discuss these at the present time. A variant on auricular tachycardia is nodal tachycardia in which impulse formation arises in the A-V nose. This cannot be clinically distinguished from auricular tachycardia and the two may be considered together as supra-ventricular tachycardia.

The symptoms of paroxysmal auricular tachycardia are the sudden onset of palpitation, faintness, dyspnea, weakness, and often anginal-like pain. These symptoms usually precipitate acute anxiety which often overshadows the initial physical symptoms. Very often the symptoms subside after a few minutes even though the tachycardia continues. In many cases there are no symptoms except mild palpitation. Serious circulatory disturbances may develop if the rate is very rapid and especially if the attack is prolonged or there is underlying organic heart disease. Congestive heart failure may develop. Peripheral circulatory impairment due to the diminished cardiac output may actually produce thrombosis with gangrene of an extremity. Rarely myocardial infarction may occur. However, it should be emphasized that these serious occurrences are the exception rather than the rule and that the majority of attacks will eventually subside without serious consequences. even in the absence of treatment.

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*Presented at the meeting of the Clarksdale and Six Counties Medical Society, March 23, 1955.

Physical examination reveals a rapid regular rate of 150 to 250 per minute. The usual rate is about 160 per minute, and is remarkably constant over a period of hours. Exercise, changes in position, and breath holding which alter the rate with a sinus tachycardia have no effect on the rate in auricular tachycardia. The rhythm is perfectly regular without even slight variation in the period between heart beats.

Methods which produce vagal stimulation will in the majority of cases abolish the attack. The attack will stop abruptly and the heart immediately revert to a normal rhythm. If vagal stimulation does not abolish the attack then it will have no effect at all on the rate and rhythm. Sometimes one method of vagal stimulation will work when others fail, so several methods should be tried if the first does not succeed. The following maneuvers reflexly stimulate the vagus: 1) the valsalva maneuver—that is taking a deep breath and forcefully expiring against the closed glottis; 2) vomiting, induced by gagging, or other means; 3) carotid sinus pressure and, 4) ocular pressure. The latter two methods are generally the most effective. Ocular pressure, although it has the objection of being painful, will often work when all other methods fail. However, I have seen a case in which both ocular pressure and carotid sinus pressure were ineffective, but in which the valsalva maneuver invariably was successful. Treatment of paroxysmal auricular tachycardia consists of two phases, the management of the acute attack and the prevention of future attacks.

In abolishing the acute attack the diagnostic maneuver of vagal stimulation is often all that is necessary. If this fails to cause cessation of the attack then drugs must be resorted to.

Recent opinion seems to be that the drug of choice in abolishing an attack is digitalis. If the situation is urgent digoxin or lanatoside C may be given intravenously; otherwise they are given intramuscularly (the intramuscular dose being 1.6 milligram of lanatoside C, cedilandid, or 1.5 milligram of digoxin. One-half this amount is given intravenously, if that route is used, then is repeated in one hour.) However, in most cases the oral route of administration is entirely satisfactory and parenteral administration is unnecessary.

If digitalis fails to revert the rhythm to normal quinidine may then be used. The dose is determined by trial. The usual procedure is to start with 0.2 to 0.3 gram every two to four hours and gradually increase the dose until the paroxysm is abolished or toxicity appears.

Mecholyl in doses of 20 to 60 milligrams "H" is usually effective through the mechanism of marked vagal stimulation. However, its usefulness is limited by unpleasant side actions (flushing, sweating, salivation, bronchial constriction, etc.) and by its very short period of action. Pronestyl, which seems to have essentially the same action as quinidine, may also be used. Other drugs have been reported as occasionally successful in stopping paroxysms. Among these are intravenous magnesium sulfate, intravenous calcium gluconate, and prostigmine.

For the prevention of future attacks either digitalis or quinidine may be used. Digitalis is probably a little more reliable, but it must be emphasized that full digitalizing doses must be used. However, in the cases of infrequent attacks a decision must be reached as to whether the attacks occur often enough to justify the continuous administration of a drug for prevention.

PAROXYSMAL AURICULAR FLUTTER

Auricular flutter is a disturbance in cardiac mechanism in which the atria beat regularly at the rate of 250 to 350 per minute. It occurs much less commonly than auricular tachycardia, and is usually associated with organic heart disease. It occurs in paroxysms which are prone to last much longer than those of auricular tachycardia. There is usually present a two-to-one or three-to-one heart block, so that the ventricular rate is one-half or one-third of the auricular rate. Thus the ventricular rate is apt to be about the same as in paroxysmal auricular tachycardia, a fact which makes differentiation more difficult. Occasionally, the degree of A-V block is variable, in which case the ventricular rhythm will be irregular making it easy to confuse with auricular fibrillation or very frequent premature contractions. Auricular flutter is thought to be due to a circus movement through the atrial musculature.

The symptoms of paroxysmal auricular flutter are essentially the same as those of paroxysmal auricular tachycardia. Bedside diagnosis is difficult. However, the following points are helpful:

1. The rate is regular, except in the occasional case with variable A-V block. Exercise will usually make the rate regular in these cases in distinction to auricular fibrillation in which exercise is apt to aggravate the irregularity.
2. If the jugular pulse can be seen and counted then the auricular rate of 250 to 350 per minute may be determined. The presence of a ventricular rate of one-half to one-third of this establishes the diagnosis.
3. Vagal stimulation usually has no effect on the auricular rate but it is apt to cause an abrupt slowing of the ventricular rate which returns to the original rate as soon as the vagal stimulation is discontinued.

Treatment consists of the administration of digitalis or quinidine or both. The administration of digitalis is intended to slow the ventricular rate. In some cases the flutter will revert to normal rhythm with digitalization. In others the digitalis will increase the A-V block producing a slow ventricular rate with persistent flutter. In other instances the flutter will convert to auricular fibrillation following digitalis. In either case if the digitalis is then withdrawn normal rhythm may ensue. If this does not occur quinidine may be administered.

PAROXYSMAL AURICULAR FIBRILLATION

The third type of paroxysmal rapid heart action is auricular fibrillation. It is one of the commonest and probably the most important of the disorders of the heart beat. It is characterized by extremely rapid irregular auricular impulses, by ineffectual auricular contractions, and by irregular rapid ventricular beats.

Mechanism: Auricular fibrillation is generally considered to be due to numerous circus movements in the auricular musculature. Whereas, the circus movement in auricular flutter is said to follow a regular path around the auricles, that in fibrillation follows an irregular, constantly changing path at a much higher rate (500-600 a minute as compared to around 240-300 in flutter). As a result the auricles remain distended and merely quiver or fibrillate but never completely empty. As a result of the fibrillation the A-V node is constantly receiving many impulses of extremely variable intensity and timing. Those reaching the node when it is refractory or relatively refractory fail to pass through to the ventricles. Therefore a ventricular response is elicited by only every third or fourth auricular impulse. Because of the irregular initiation of impulses to the ventricles the ventricular rate is irregular. Furthermore because the ventricular musculature is in a variable state of refraction at the time of arrival of the impulses the ventricular contractions are variable in force. This results in an absolute irregularity of rate and force of ventricular activity which is reflected in a similar irregularity of pulse rate.

Etiology: Auricular fibrillation occurs classically in association with rheumatic heart disease with mitral stenosis, with coronary arteriosclerotic heart disease, and with hyperthyroidism. But it may occur in any type of organic heart disease, especially where there is congestive failure. While usually associated with severe organic heart disease, it is occasionally discovered in patients with apparently normal hearts in whom the arrhythmia is precipitated by some non-cardiac condition such as pneumonia, biliary colic, or surgical operation. Also the condition occasionally appears to be purely functional without anatomic disease of the heart, in which cases it is usually paroxysmal in character.

Auricular fibrillation *per se* may produce few symptoms. There are occasions when auricular fibrillation is present and the patient is entirely unaware of any cardiac disorder. Furthermore, the symptoms due to the fibrillation itself are frequently obscured by the symptoms of the associated cardiac or non-cardiac disease. Palpitation is the most common symptom. Precordial oppression or pain, anxiety, weakness, and dizziness often occur. Fainting may occur with the onset of a paroxysm. Once the fibrillation is established most of the symptoms may disappear, particularly if the rate is slow. Additional symptoms may be produced by two complications which are apt to occur as a result of fibrillation: 1) heart failure may be precipitated by the additional strain on an already diseased heart; 2) thrombus formation in the auricles is favored by the loss of auricular contraction, with a resultant situation favorable to embolization.

Signs: Complete irregularity of the heart beat is the characteristic physical sign of auricular fibrillation. With very rapid or very slow rates the irregularity is more difficult to detect and regularity may be simulated. When the ventricular rate is rapid the pulse rate is usually less than the apical rate. This pulse deficit is due to many of the weaker ventricular contractions failing to open the semilunar valves and expel the column of blood which produces the radial pulse. Another sign of auricular fibrillation that may be elicited is a variation in the loudness of the first heart sound. The second heart sound may be absent when weak ventricular beats fail to open the aortic valves. Vagal stimulation produces a slowing of the ventricular rate with no effect on the irregularity and following release of the stimulation the rate returns to the original level.

Course: Prognosis depends to a great extent on the underlying cardiac pathology. Paroxysmal fibrillation occurring in the absence of underlying cardiac disease is usually of no great importance as regards the outlook for life or the development of heart disease. Occurring in the presence of other cardiac disease it has a more serious import because it may be a harbinger of persistent fibrillation and/or congestive failure.

Treatment: Treatment consists of the use of either digitalis or quinidine. No treatment may be indicated if there are no symptoms due to the arrhythmia or if paroxysms subside spontaneously after brief duration and recur infrequently. In general, digitalis indicated if there is congestive heart failure, and it is preferred if there is serious underlying heart disease even without failure. Quinidine is usually preferred if the arrhythmia is a symptomatic disturbance, is of recent duration, and if there is no significant cardiac enlargement and no heart failure.

Digitalis Therapy: Digitalis slows the ventricular rate in auricular fibrillation but usually does not restore sinus rhythm. Since most of the circulatory disadvantages of auricular fibrillation are due not to the irregularity but to the rapid ventricular rate, slowing of the ventricular rate accomplishes a desirable result. Digitalis acts in two ways: 1) Through vagal stimulation it shortens the refractory period. This tends to perpetuate the circus movements and therefore to foster fibrillation by rendering the tissue responsive when the excitation wave completes its circuit. 2) By direct action on the A-V node and bundle digitalis slows conduction. This prevents most of the excessive auricular impulses from reaching the ventricle, permits more time for ventricular diastolic recovery and filling, and thereby produces slower, more forceful ventricular contraction. Thus the vagal effect tends to maintain the fibrillation while the direct effect on the junctional conduction system slows the ventricular rate. The advantage of the latter far outweighs the disadvantage of the former. Occasionally digitalis will restore sinus rhythm, particularly if due to decompensation or impending decompensation.

Quinidine Therapy: Quinidine is employed in an attempt to restore normal sinus rhythm. It is usually contraindicated in chronic cardiac disease or heart failure, longstanding auricular fibrillation, and cardiac enlargement; in these circumstances fibrillation is very apt to recur if abolished, there is danger of embolization from auricular thrombi as sinus rhythm is restored, and there is danger of sudden death from cardiac standstill in patients with A-V block. Quinidine by direct depressant action on the auricular musculature prolongs the refractory period. Then when the circus wave responsible for the fibrillation completes its circuit and finds the muscle still refractory, the circus movement is abolished. This permits sinus rhythm to re-establish itself. Quinidine tends to increase the ventricular rate, but this undesirable effect is unimportant if sinus rhythm is restored.

PAROXYSMAL VENTRICULAR TACHYCARDIA

The last condition I wish to review is paroxysmal ventricular tachycardia. In many ways this condition is very similar to auricular paroxysmal tachycardia. However, there are certain important differences. The mechanism of ventricular tachycardia is probably due to an ectopic focus of impulse formation in the ventricles. The auricles contract independently of the ventricular rhythm except occasionally when retrograde conduction occurs. This condition unlike auricular tachycardia is usually associated with serious organic heart disease, especially coronary artery disease. The rate is usually between 150 and 250 per minute. The rhythm is apparently regular, however, slight irregularity may occasionally be detected. Vagal stimulation has no effect on paroxysmal ventricular tachycardia. Slight variations in the quality of the first heart sound due to asynchronous contraction of the auricles and the ventricles may sometimes be detected. On the basis of the above points the differential diagnosis between auricular and ventricular tachycardia may occasionally be made. However, most cases require the EKG for definite differentiation.

The symptoms of ventricular tachycardia are essentially the same as those of auricular tachycardia.

Treatment consists of the administration of either quinidine or pronestyl (procaine amide). Both drugs act by depressing the myocardium and reducing thereby its abnormal irritability. Digitalis must not be used in this condition. It increases the irritability of the myocardium and there is serious danger of precipitating ventricular fibrillation. Therefore, if one is unable to determine whether the tachycardia is ventricular or auricular in origin, digitalis must not be used, but quinidine rather should be administered.

SUMMARY

The diagnosis and management of paroxysmal rapid heart action has been reviewed. The following conditions were discussed: 1) paroxysmal auricular tachycardia, 2) paroxysmal auricular flutter, 3) paroxysmal auricular fibrillation, and 4) paroxysmal ventricular tachycardia.

Emergency Surgery for Abdomen*

MAURICE A. CREEKMORE, M.D.
Greenville, Miss.

In considering emergent conditions of the abdomen, I would like to review with you certain fundamentals to be considered in the approach to those conditions. Only the broad concepts of such conditions can be touched upon.

The clear-cut pathological states and those due to trauma, such as gunshot wounds and the friendly "stabblings" so often encountered, present no special diagnostic problem.

Those patients presenting many and varied physical findings with vague histories that are just as varied can be most trying to all physicians.

History is quite essential in making a correct diagnosis. This often must be obtained from members of the patient's family or close friends who have been present during the course of the illness. Past history is often more accurate from this source and, of course, must always be resorted to in the case of small children. If the patient is very ill, he often doesn't remember the sequence of symptoms as well as some member of his family. The referring physician often knows more about the patient than any other person and in no instance should his statements ever be disregarded. Also, comparison of the physical findings of the referring physician with those found later may present the "clincher" when otherwise it would be quite difficult to work out. An evaluation of immediate symptoms against those preceding, the lapse of time since onset, previous attacks, and secondary signs must always be done.

In the differential diagnosis, a sufficient number of diseases should be kept in mind for wide coverage of the problem and at the same time give little more than a passing thought so those so remote that a working diagnosis can never be arrived at.

A generalization has been made with the acute surgical abdomen in saying that in the young, one usually finds—acute appendicitis; in the middle-aged—acute cholecystitis, perforated peptic ulcer, or acute pancreatitis; in the elderly—diverticulitis, malignant obstruction of the colon, and more rarely, mesenteric thrombosis.

The following conditions are among those that should be most commonly considered: 1) acute appendicitis, 2) acute cholecystitis, 3) perforated peptic ulcer, 4) acute pancreatitis, 5) intestinal obstruction (small bowel, colon, carcinoma), 6) diverticulitis, 7) volvulus, 8) intussusception, 9) mesenteric thrombosis.

Acute appendicitis may be very easily overlooked if there is an atypical history or in very young or very old patients. The patient may be afebrile, blood count may not be elevated and according to laboratory reports may even rarely have a leukopenia. In the elderly patient abdominal findings may be non-revealing. I think I can safely say that peritoneal irritation is always present and that more can probably be learned from a rectal and pelvic examination than any other one thing. Again, in the elderly patient one must be wary of a concomitant bowel malignancy. In the event a suspected mass is encountered, it must be considered malignant and treated as such unless proved to be otherwise.

Acute cholecystitis is usually less difficult to diagnose than most other conditions. History of previous attacks, sudden onset of persistent acute colicky pain followed by localized tenderness in the right, upper quadrant, moderately intense febrile course, aggravation of the pain by deep inspiration will be most often found. The white cell count is usually elevated in line with the degree of inflammation present. A flat plate of the abdomen may show the presence of stones. Though it should not be done during an attack, a cholecystogram will usually show non-filling of the gall bladder.

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*Presented at the meeting of the Clarksdale and Six Counties Medical Society, March 23, 1955.

In perforation of a gastric or duodenal ulcer, the examiner is usually immediately impressed with this possibility by the suddenness of onset, the intense pain, and the board-like rigidity of the abdomen. An ulcer history can usually be obtained, though it may have been many past years. An occasional patient will deny having ever had stomach trouble of any type or degree. The obliteration of liver dullness is indicative of this condition. Free peritoneal air on x-ray is diagnostic. Early in the course of the disease one may find a normal temperature, blood pressure and pulse. The more rapid the pulse and the higher the temperature, which is usually related to the time interval since the onset, the graver the prognosis. Primary gastric resection has been advocated by some, but I personally feel that in most instances the defect should be closed and more definitive therapy done at a later date. Also, some feel drainage to be unnecessary. I always drain perforated ulcer.

Acute pancreatitis has so many variants in its course and symptoms that I think we can say it has no normal clinical course. Fortunately, this is one condition in which the laboratory can make the diagnosis for us if it is done early in the course of the disease. The serum amylase is always elevated early. Since the normal values reported by different laboratories vary so greatly, one may say the serum amylase is significantly elevated when it exceeds three times the normal reading for that individual laboratory.

The pain is usually of sudden onset in the epigastric region with a tendency to radiate to the back, left flank, and occasionally into the mediastinum and left side of the chest. Coronary occlusion may be considered because of this. The pain is difficult to control with the usual doses of narcotics. Persistent nausea and vomiting are common findings. If seen shortly after onset, the severity of symptoms may greatly exceed the physical findings. There may be no rigidity and minimal epigastric tenderness. Flank tenderness is usually present at the stage. A flat plate of the abdomen may reveal segmental ileus of the transverse colon or upper jejunum. Later in the course of the disease the degree of ileus may be such that mechanical obstruction must be considered. Liver dullness is not obliterated and deep inspiration may not aggravate the pain.

In acute intestinal obstruction the level and nature of the obstruction should be determined if possible. The pain is usually sudden in onset, severe, and rhythmic in character with freedom from distress between rushes. After the obstruction has persisted for several hours the pain may disappear. The vomiting usually begins with gastric contents and progresses to fecal vomiting. The electrolyte loss from this vomiting can be extreme and requires carefully calculated replacement therapy. Onset of distension usually follows the onset of the obstruction within a few hours and is progressive unless the obstruction is high. X-rays are helpful in establishing the type and level of the obstruction. In obstruction of the colon, a barium enema can be of great value. Barium by mouth in acute small bowel obstruction is usually not necessary and is not recommended.

Volvulus should always be suspected in an acute obstruction of the intestines without history of previous intestinal disease or abdominal surgery. A characteristic pattern of a closed loop obstruction may be seen on x-ray. The distension may be uneven due to the closed loop rather than generalized as in most other types of obstruction. If located in the sigmoid, which is a common site, barium enema will delineate only the rectal ampulla. This is a condition which must be relieved in order to prevent gangrenous degeneration of the involved bowel.

In intussusception the symptom and course are like those of other acute obstruction, the pain being sudden in onset, severe and intermittent in character. After the onset of a pain, a single bowel movement that contains blood is highly suggestive of the condition. In the young, it is most due to congenital defects. In older patients it will most probably be due to tumor masses. This condition also must be relieved before the intestine becomes gangrenous.

In closing I would like to emphasize the value of a carefully taken and accurate history, systematic examination of the patient, judicious use of laboratory facilities and due consideration of possible pathological states in determining whether the patient should or should not have emergency surgery.

Management of the Hyaline Membrane Syndrome*

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Moss Point, Miss.

In order to provide for a uniform understanding of the subject of this paper, the Hyaline Membrane Syndrome is defined as that complex of abnormal pulmonary symptoms caused by the incidence of an asphyxial, hyaline membrane in the bronchial tree and pulmonary alveoli of the newborn infant. The consensus of pathologists appears to be that the hyaline membrane occurs in two ways. First, it may be formed from amniotic fluid in the pulmonary passageway which for some reason is not expelled at birth. Second, it may develop from amniotic fluid aspirated during delivery.

The exact mechanism by which a hyaline membrane develops in the lung of the newborn is at the present time controversial. But it is believed that the aspirated fluid becomes concentrated by absorption of water. Subsequently a tenacious and impermeable membrane with hyaline degeneration results. If this pathological membrane is extensive enough to cause asphyxia and death from anoxia by obstructing normal ventilation of the lungs. In addition to obstruction to normal gaseous exchange, such a membrane causes primary atelectasis to persist and reabsorption atelectasis to occur in the obstructed segments of expanded lung. Since such a pathological lung is extremely susceptible to all kinds of bacterial invasion, infection in the form of bronchopneumonia and acute, terminal bronchiolitis are frequent and often fatal complications. Brain degeneration due to anoxia is a later complication and should always be suspected in infants who are fortunate enough to survive a hyaline membrane.

Unfortunately, the positive diagnosis of hyaline membrane disease is made only at the autopsy table and for that reason, there has been a tendency on the part of clinicians to look rather too pessimistically upon this condition and to consider it a hopeless clinical problem. However, it is believed that some and possibly many infants with less extensive membrane formation manage to recover from this difficulty. Since survivors do not come to autopsy, it cannot be definitely stated what proportion of affected infants can and do survive. Actually this pathological condition is a challenging problem for the interested clinician. Perhaps many more infants will survive hyaline membrane asphyxia if we who are concerned with the care of the newborn are more alert and vigorous in our attack on this threat to the life of the infant.

If treatment is to be effective, hyaline membrane disease must be suspected as a possibility long before symptoms are manifest. This will, of course, lead to the overtreatment of some infants. But the salvage of even one infant will more than justify any wasted therapy.

The Hyaline Membrane Syndrome can be suspected under four conditions. The first of these conditions is prematurity. For some reason the premature infant is particularly susceptible to this pathology. Second, the post-mature or "sick" overterm baby occasionally is a victim of asphyxia due to membrane formation. Third, the infant born by Caesarean section is sometimes victimized by this condition. Fourth, any infant born of an abnormal delivery in such a way as to be exposed to trauma, aspiration of amniotic fluid, or brain injury should be suspected of being involved with a hyaline membrane.

If the clinician is alert to the dangers of these pathological deliveries to the infant, he will institute immediately all measures to provide the newborn with the best possible condition for survival. At the Jackson County Hospital it is believed that the following measures and procedures are definitely helpful and sometimes lifesaving:

First, the infant suspected of having hyaline membrane possibilities is placed in an incubator equipped for the administration of oxygen and atomized water vapor. In many cases a liquid detergent (Alevaire—Winthrop-Stearns) is used. Vigorous suction to clear the air passageway of mucus and débris is started immediately after birth and continued for two or three days if necessary. In the case of Caesarean section babies, a small rubber catheter is passed into the stomach for removal of stomach contents which usually consists of mostly mucus and amniotic fluid. Stomach gavage is repeated frequently the first day. Oxygen is administered only as long as is necessary to correct cyanosis, oxygen should be used sparingly and not at all in the infant without cyanosis.

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*Presented before the Section on Pediatrics at the eighty-seventh annual meeting of the Mississippi State Medical Association, May 10-12, 1955, Biloxi, Miss.

As prophylaxis against infection penicillin and streptomycin are given the first few days until the danger of infection has passed. In the case of post-mature infants it is helpful to give vitamins B and C intramuscularly because these babies frequently show signs of malnutrition and avitaminosis.

The duration of treatment depends upon the individual infant. Some infants adjust rapidly to extrauterine life and require only a short period of respiratory "probation" in the incubator and oxygen. Some are essentially normal after twenty-four hours and may be placed in the regular nursery. Others will require several days of intensive treatment and still others will die in spite of all efforts.

It should also be stated that all other principles of good pediatric care apply in the management of hyaline membrane disease. Good nursing care, especially watchful attention by the nurse, can make the difference between life and death. Fluid balance and careful feeding should be important parts of the management. We have found Mead Johnson's lytren electrolyte preparation to be very helpful in management of fluid and electrolytes. Any other complication, of course, should be met if it occurs.

In conclusion, it should be emphasized again that survival from the "less extensive" hyaline membrane formations depends upon prompt action on the part of the clinician. We should not wait for symptoms of anoxia to develop before instituting therapy. Often it is too late when the first cyanosis appears. This is a very controversial problem but it is not one to be ignored. Until more is learned about the hyaline membrane syndrome, it is honestly believed that early treatment of the "suspected infant" will be the best approach to this a serious problem of the newborn infant.

Let every dawn of morning be to you as the beginning of life.

The following poem is submitted by Dr. Frank Mikovich of Mount Olive, Miss., with the suggestion thai it is suited for use in the doctor's waiting room where his patients can read it. Dr. Miikovich has worked out a framed copy for distribution to doctors.

THATS OLE DOC!

A Doctor gives his aid to all,
Because he knows this was his call;
Gifted by the hand of God,
He makes us well, for love is odd.

Now, that we are well again,
We're much too strong to be his friend;
We cross the street to pass him by,
Because we know the reason why.

We're back in bed again, again,
We look for Doc, who is our friend;
We don't realize what to do,
Because we know we owe him, too.

From his heart he comes to call,
Before he knows, he gave his all;
Now that he is old and gray,
That's ole Doc! We never did pay.

The ability to keep a cool head in an emergency, maintain poise in the midst of excitement, and to refuse to be stampeded, are true marks of leadership.

Going to law is losing a cow for the sake of a cat.

The first service-connected case of leprosy in a World War veteran has been reported, causing prediction of more to come.

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EDITORIALS

FAMILY DOCTOR TODAY

"The species of the country doctor is not extinct," said Ex-President Herbert Hoover, in a speech extolling the family doctor on his eighty-first birthday. "With urban life, paved roads, and the automobile, he has changed his name to that of the family doctor. He is better equipped to fight disease and accident, but the family doctor has the same qualities of moral strength, friendship, and family guidance as of old."

PUBLIC RELATIONS SESSION

The American Medical Association held a two-day session, August 29-30, in Chicago, on public relations. This was a part of A. M. A.'s present effort to extend its program of service into practically every phase of human life. Of all the professions it is said that a good public relations man is the hardest to find. A public relations man is one who is able to walk around a subject and see all sides of it, especially the other man's viewpoint and then get done that which is to the best advantage of all concerned. Good public relations require a man to know and to understand and to treat his fellowman as he would like to be treated. Practising service above self plus ten per cent for processing expenses might be a good plan to try. The public and the medical profession need only to know each other better that they may understand and cooperate for the good of all.

VOLUNTARY HEALTH INSURANCE

Voluntary insurance is said now to cover 101,493,000 American citizens, or an increase of 4.3 per cent over the year past. Surgical expense protection increased 6.1 last year, or three and a half times as fast as the growth of the population. Regular medical expense protection rose at the rate of 10.7 per cent. Voluntary insurance is accepted as the best answer thus far for better medicine for more people.

S. M. A. Pediatric Program

The program for the Section on Pediatrics of the Southern Medical Association is just about finished, reports Dr. Harvey F. Garrison, Sr. "We think it is going to be an outstanding one. At the present time we have ten heads of pediatric departments who have already accepted places on the program. This is perhaps three times more than we have ever had before of that type men," he said.

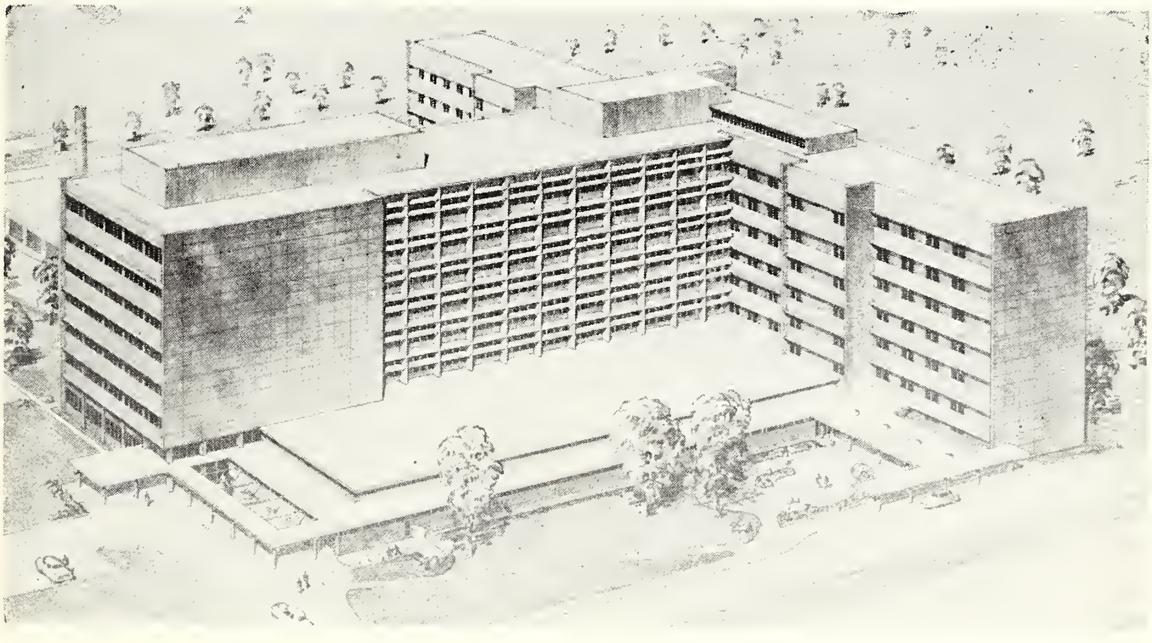
"I have done my best to impress upon the heads of the departments of the medical colleges throughout the territory of the Southern Medical their responsibility to the profession residing in the Southern states, because it is the medical profession and the citizens in these states who not only helped to establish their institutions, but who also continue to support them. As you know, the great majority of medical colleges. Therefore these schools owe practicing physicians of the South a debt of gratitude, especially after it is brought to their attention that they could not exist without the financial and other support of the profession and the citizens, and that it is important that they contribute their talents and teaching abilities to the programs of the Southern Medical Association each year. I have done my best to impress this upon them, and I feel sure that I have aroused the interest of quite a number of them far more than has ever been done before," he continued.

Dr. Garrison is the father of pediatrics in Mississippi, and we look forward to this excellent program of the Section on Pediatrics at the Southern Medical Association in Houston, Texas, November 14-17.

NEW ORLEANS TO DRAW RESEARCH GROUPS

The Scientific Sessions and the programs of the Council on Community Service and Education and of the Council on Rheumatic Fever and Congenital Heart Disease will be conducted at the New Orleans Municipal Auditorium, October 22-24. Other events, including the annual meeting of the Assembly, top governing body of the Association, will be held at the Jung Hotel.

Two special lectures have been scheduled. On Saturday, October 22, the Conner Lecture will be presented by George A. Perera, M. D., Associate Professor of Medicine at the Columbia University College of Physicians and Surgeons. His subject will be "Primary Hypertension." George Burch, M. D., Henderson Professor of Medicine at Tulane University School of Medicine, will give the Brown Lecture on "Digital Rheo-Plethsmography" on Sunday, October 23.



NEW MEDICAL SCHOOL OPENS

September brings to Mississippi the opening of the new four-year medical school, says a news report from Jackson. One hundred and thirty-eight future doctors will make up the first classes. Six women are included. The 350-bed teaching hospital was opened in July and is operating with a phenomenal patronage. Half the beds in the teaching hospital are for patients unable to pay.

Dr. J. R. Snavely, formerly of Tulane University, is professor and chairman of the Department of Medicine. Other faculty members are:

Dr. Michael Newton, formerly of the University of Pennsylvania, professor and chairman of Obstetrics and Gynecology, Dr. Blair Batson of Johns Hopkins, professor and chairman of Pediatrics, Dr. Robert D. Sloan of Johns Hopkins, professor and chairman of radiology, and Dr. James Hardy of the University of Pensylvania, professor and chairman of Surgery.

This four-year school and hospital constitute a nine-million-dollar plant. It is well located in the capital city of Jackson, at the cross roads of the Deep South. Jackson, while growing in population and in industrial development, has advanced rapidly as a medical center, strengthened by our unique community hospital system over the state. With an outstanding public health record, an unsurpassed arterial system of roads, a progressive junior college system, a coast vacation ground. and balanced agricultural-industrial program, this medical school can fit successfully into the state economy. It merits the support of every citizen, doctor, and legislator.

THE CIGARETTE

The effect of cigarette-smoking on cancer and heart disease is a question that has not been conclusively settled. However,there are some findings that seem fairly conclusive. The cost is not inconsequential. And it is reasonably certain that it does not add to life's length, volume, or productivity. We quote the following:

"More than double the death rate from cancer and nearly double the death rate from coronary artery disease was found among heavy, pack-a-day-or-more cigarette smokers compared to non-smokers in a two-and-a-half-year statistical study of 187,766 men aged 50 to 70."

The challenge to the medical profession is to build a citizenship adequate to meet life's demand with a superior performance.

THE TONSIL AND ADENOID PROBLEM

Whether to remove tonsils and adenoids or not to remove them poses as great a problem as ever. The indications for removing tonsils and adenoids have perplexed the physician and even the surgeon. The seriousness of the operation has not generally admitted. Poor surgical procedure is evidenced in many postoperative throats. In this issue of the journal you will find a very fine paper on the tonsil problem by Dr. Lawrence R. Boies of Minneapolis, Minnesota.

ABSTRACTS FROM PEDIATRIC LITERATURE

Regional Enteritis In Children: Report of two Cases. W. K. Howard, E. J. Pulaski and R. W. Morrissey. J. Pediat. 46:298-302 (March) 1955 (St. Louis).

The occurrence of regional enteritis is reported in a 2½-year-old girl and in a 5½-year-old girl. The younger girl, who had an acute obstruction of the small intestine, is thought to have had one of the earliest acute cases of regional enteritis with complications reported in children. The older girl had a chronic partial obstruction of the lower intestine and had one of the few cases reported in children which ran a chronic clinical course similar to that observed in adult patients and in which among multiple areas of involvement the jejunum was affected. The course of regional enteritis in children is more often the acute form simulating acute appendicitis and subsiding spontaneously. A trial on a medical regimen of observation, antibiotics, and supportive therapy would seem warranted in all cases of regional enteritis in children, except in those with complication; failure of the medical regimen or the development of complications would call for surgical intervention. In accordance with these principles, an exploratory laparotomy was done in both patients; it revealed the entire mesentery of the small intestine of the younger patient to be extensively involved with mesenteric adenitis. A 7 to 8 in. segment of the ileum was enlarged and cyanotic with adhesions of the serosal surface. This portion of the ileum was resected, and an ileoileostomy was performed. In the older girl, a jejunojejunostomy was performed, and one month after the surgical intervention, the gastrointestinal roentgenograms were normal. Regional enteritis should be considered in all cases of unexplained abdominal pain in children.

COMMENT

This is quite an unusual revelation of some pathological conditions that not too often occur, and when they do, it is sometimes very difficult to understand what the actual pathology is. I commend this article to the physicians of our state to be given some thought and consideration.

A H ANNUAL MEETING

With arrangements nearing completion, indications are that the American Heart Association's 31st annual meeting in New Orleans, La., October 22-28, will present the most extensive and varied program conducted by the Association.

ANNOUNCEMENTS

S. Gwin Robbins, M. D., announces the opening of his office at Baptist Hospital, 899 Madison Avenue, Memphis, Tennessee. Practice limited to thoracic and cardio-vascular surgery.

Richard C. Snow, M. D., announces his association with Thomas J. Marland, M. D., in the practice of Anesthesiology., 501 Barnett-Madden Bldg., Jackson, Mississippi.

FOR SALE: Doctor's office equipment, at half price. Send for list. J. Will Pierce, M. D. Box 455 Marked Tree, Arkansas.

FIFTY-YEAR BIOGRAPHICA

EMMA von GREYERZ GAY

Emma von Greyerz Gay was born in Geneva, Switzerland, but came to this country when a child. Her parents settled in Louisville, Kentucky, but later moved to St Louis, Missouri, where she finished public school. Following this, she took a nurses' training course.

She was graduated from Barnes Medical College, first medical college to open its doors to women, in 1905. Practice in a rural farming section in Pike County, Illinois, for fifteen years followed. In 1920, she began practicing on the Gulf Coast. In 1942, she and her husband, Dr. Fred Gay, established The Gay Clinic. Since 1953, following her husband's death, she has been director and consultant of the clinic.

In 1936, Doctor Gay was appointed State Commander, Women's Field Army, American Cancer Society. For nine years she did pioneer work in the state. She is now a life member of the board of directors, Mississippi division, American Cancer Society and a member of the Terminal Cancer Committee.

A member of the Presbyterian Church, Doctor Gay has taught a Sunday school class most of her adult life.

On May 10, 1955, the Fifty Year Club honored Doctor Gay with lifetime membership—the first woman physician to be so honored—following fifty years of practice.

For many years, Doctor Gay has served mankind faithfully and well—and is affectionately known as "Doctor Emma." She devotes time to indigent cancer cases and unselfishly gives of her time and talent in the Cancer Crusade.

DEATHS

DR. J. G. CARSON

Dr. James Green Carson, retired physician, died at his home at Hillhouse, Miss., about 10 miles south of Clarksdale, August 17. He was 86. Following funeral services, burial was in the family cemetery at Hillhouse.

He was born at Hillhouse in March, 1869, the son of the late Joseph and Medorah Carson. He was a graduate of the Columbia School of Medicine in New York. He had been in ill health for many years.

DR. R. A. STRONG

Funeral services were held August 9, for Dr. Robert A. Strong, 70, of Pass Christian, Miss., who died at the Veterans Hospital.

Dr. Strong was professor emeritus at Tulane University, having served as professor and chairman of the Pediatrics Departments from 1929 to 1944.

A native of New Orleans, Strong was graduated from the Tulane School of Medicine in 1907 and joined the school's staff in 1911.

He received recognition during World War I when he served as one of three medical officers who pioneered in the field of aviation medicine at San Antonio, Texas. He served as chief of medical services at Kelly Field.

DR. J. T. CARR

Dr. Joseph Thompson Carr, 80-year-old retired physician, died August 5, at the Methodist Hospital in Hattiesburg following a long illness.

Dr. Carr was a practicing physician at Moselle, 15 miles north of Hattiesburg in Jones county, for 33 years until poor health forced his retirement three years ago. Following graduation from Medical school of the University of Louisville in 1904, Dr. Carr practiced for some time in Oklahoma before coming to Mississippi.

Dr. Carr leaves his wife, two daughters, Mrs. Van W. Jones of Jackson and Mrs. Catherine Lee of Hattiesburg; one son, Maurice L. Carr, of Waco, Texas; three sisters, Miss Mary Carr, of Magee, Mrs. Nannie Strahan of Sacramento, Calif., and Mrs. Grenaide Magee of Mize; one brother, Alex Carr of Magee, and four grandsons.

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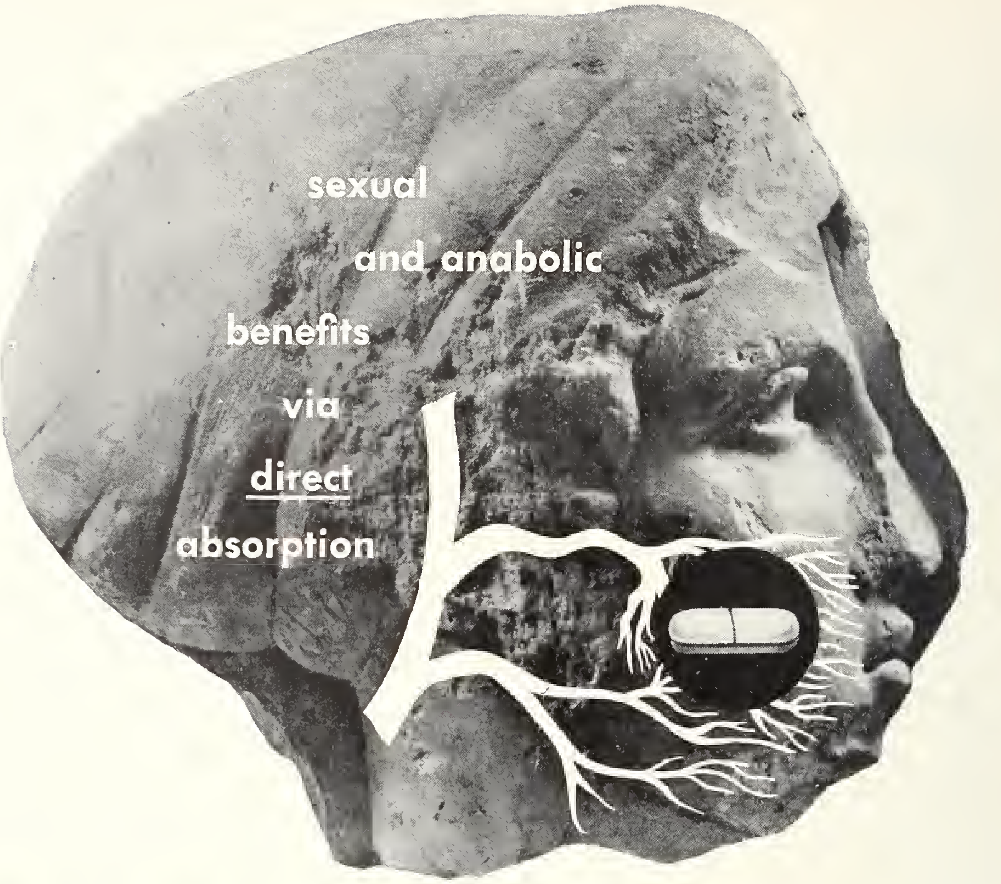

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Acute Gastric Dilatation*

THEO F. MIDDLETON, M.D., F.A.C.S.
Mobile, Ala.

First described by Hans Kundrat in 1871, but recognized as clinical entity as early as 1833, acute gastric dilatation has been offered a problem to the surgeon, internist, and obstetrician for over 100 years. Little change has actually occurred in the diagnosis or treatment of this condition through the years. Our main progress has been in earlier recognition and realization of the occurrence of the acutely dilated stomach with many conditions in which it was previously overlooked or misdiagnosed.

In 1931 Dragstedt[1] published his treatise on "Pathogenesis of Acute Dilatation of the Stomach," which has served as the basic hypothesis for the major part of the work that has been done in our country on this condition. Gold[2] in 1951 re-emphasized Dragstedt's work and stated he believed acute dilatation of the stomach was no longer uncommon, but may be associated with many conditions, i.e., all abdominal surgery particularly of the gallbladder and intestine; chest and cardiac surgery, fractures of the spine and femur, all prolonged general anesthetic, particularly with cyclopropane, any sudden severe traumatic experience or injury.

Acute gastric dilatation has been reported in cases of migraine[3], tuberculosis[4], diabetes mellitus[5], polio[6], starvation with sudden feeding[7], of spontaneous onset in a scrubwoman at work.

Titus[8] mentions acute dilatation of the stomach, as an obstetric complication, only three times in his last book. He refers to it under postoperative care following Caesarean section and states it occurs commonly following classical Caesarean sections, and is frequently confused with peritonitis. He further states it occurs after spontaneous delivery and if occurring 48 hours after delivery may be misdiagnosed as peritonitis.

A review of the obstetrical and gynecological periodicals reveals a paucity in the number of cases reported. The current textbooks mention it as a common complication, though this is not the impression one would get from the literature.

The theories of pathogenesis have been mainly two. The first on a mechanical basis, was derived in 1871 from Kundrat's original observation at postmortem examination of patients dying with uncontrollable vomiting and death attributed to peritonitis. Autopsy revealed an acute dilated stomach instead of peritonitis and frequently the duodenum was found distended to the point where the superior mesenteric artery and vein cross under the mid-portion of the duodenum. Kraas[9], in 1934, stated he found this situation existent in 30 per cent of the cases he observed.

This concept seemed to be adhered to through the years, and terms such as arterio-mesenteric ileus and duodenojejunal ileus appear from time to time in literature associated with cases descriptive of acute gastric dilatation.

In 1931, Dragstedt, *et al,* gave us a new interpretation of acute dilatation of the stomach and bases the etiology and pathogenesis on stimulation of the visceral afferent nerves. The theory was not new as Brinton[10], in 1859, and Novak[11], in 1921 had already mentioned that they believed the mechanism of production was nervous in origin.

Dragstedt and his group accumulated enough experimental evidence to show in summary that the dilatation was due to reflex inhibition of the peripheral gastric motor mechanism through efferent impulses reaching the stomach by way of the vagi and splanchnics. His evidence showed that stimulation of either visceral or somatic sensory nerves may produce reflex gastric inhibition[12]. The effect on the stomach of this vagal inhibition is similar to that produced by vagotomy as described by Johnson[13].

The dilatation is then produced by the swallowing of air into an atonic stomach and the accumulation of secretions from the stomach and duodenum. The fluid is found to be composed of pancreatic juice, bile, and upper duodenal and gastric secretions. It is the atony of the stomach and duodenum that fails to propel the secretions into the lower intestine where absorption occurs. Since the gastric, duodenal, pancreatic, and bile secretions are not absorbed, the altered metabolism result is hypochloremic alkalosis.

Because the clinical picture of acute dilatation of the stomach is for the most part a clear one, and the current textbooks and literature in the field of obstetrics and gynecology have made little or no mention of it, it is the purpose of this paper to re-emphasize this serious situation.

The picture may be of insidious onset, usually following operative procedure of the pelvis, particularly those involving bowel manipulation, frequently after classical Caesarean section, or in patients with toxemia. The patient may complain of effortless vomiting with clear fluid at first that later becomes odorless and greenish-black in color. The abdomen will become distended in varying degree from the severity of the symptoms. The pulse rate will increase with a corresponding temperature rise. The patient will appear anxious, and complain of pain in the upper abdomen. There will be a gradual suppression of urine with tetany as alkalosis prevails. Dehydration will occur rapidly with the profuse outpouring of gastric and duodenal content.

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*Presented before the Section on Surgery at the eighty-seventh annual meeting of the Mississippi State Medical Association, May 10-12, 1955, Biloxi, Miss.

The most serious occurrence of acute nature which has been mentioned by some (Gold[14], Braag[15]) is shock. Varying degrees of emphasis have been placed on shock as a part of the clinical picture of this condition. Titus says nothing of it in his textbook[16], Gold mentions it occurs rarely and Braag states he believes it occurs frequently. Dragstedt did not mention it in his early work.

Treatment of this condition is simple yet dramatic once recognition or suspicion is present.

If recognized in the early stages with onset of the insidious clear vomitus, and minimal distention simply employing a Levine tube with suction with or without gastric lavage, will result in prevention and relief of the condition.

Once the condition has progressed to further stages with resultant atony of the stomach, damage of the gastric musculature, and production of large amounts of gas due to fermentation, it becomes necessary to employ continual suction and careful replacement therapy and maintenance of fluid and electrolyte balance. Blood and urinary chlorides are valuable in handling the amount of chlorides to be replaced.

All fluid by mouth is stopped and careful intake and output records are maintained. Moving the patient in bed or actual pressure over the distended stomach with the tube in place will aid in removing large quantities of gas.

A case report is presented to illustrate the occurrence of shock as a complication of an acute gastric dilatation.

CASE REPORT

Mrs. U. S., age 33, Hospital No. 4557, Gravida VI, Para III, LMP—1-12-53, EDC—10-19-53, was admitted to the U. S. Naval Hospital, Memphis, Tennessee, at 8:20 A.M. on 9-13-53, with convulsions, approximately 34 weeks pregnant, B.P. 190/110. Control measures were started and by 9-15-53, her B.P. had been lowered to 138-90/100. No more convulsions occurred, and it was decided to keep her in the hospital until she was in her thirty-seventh or thirty-eighth week and then schedule her for a repeat Caesarean section. She had been sectioned in 1949 for placenta previa.

On 9-23-53, while under control but still with hypertension, the membranes ruptured and spontaneous labor occurred at 10:30 A.M. She was then taken to the operating room and under general anesthesia a low cervical section was done. The indications were controlled severe eclampsia, and previous section.

She had an uneventful typical postoperative course for the next 48 hours with gradual fall of the blood pressure to 128/90. The usual abdominal discomfort with a Caesarean section with no marked distention was noted, though there was an insidious onset of nausea, with vomiting and complaints of flatus with belching of gas. At 7:30 P.M. on 9-25-53, the patient stated she felt "something was wrong." She became cold and clammy and started to hiccough. Blood pressure taken at that time was not obtainable, pulse was imperceptible and the ward doctor was then notified by the nurse. Apical heart rate was 158. 500 cc. dextran was started, and blood for test match was drawn. 1500 cc. blood was ordered and other routine shock measures were started.

Examination of the patient did not reveal any marked distention of the abdomen though there was diffuse tympany and extreme tenderness especially in the flanks.

The whole picture with the acute onset was attributed to severe intra-abdominal hemorrhage and the diagnosis of acute dilated stomach was not considered.

With the dextran and 1000 cc. whole blood the pressure rose to 80/60 and at 9:00 P.M. under general anesthesia she was explored through the previously made mid-line incision.

There was no free blood in the peritoneal cavity. The incision in the uterus and the ligation site were well healed. There was no evidence of mesenteric thrombosis, volvulus, intussusception or perforated viscus, all of which could have accounted for the shock picture.

Noted extending down almost to the level of the umbilicus was a dilated stomach full of visible dark fluid.

A Levine tube was immediately placed in the stomach and aspiration started. 600 cc. of green black fluid was removed. Large amounts of gas was expelled with mild manipulation of the stomach.

Within 10 minutes there was a gradual rise of the blood pressure from 80/60 to 120/80. The pulse remained at 140 throughout the procedure.

The patient made as dramatic a recovery from the profound clinical shock as she had exhibited at the onset.

After a fairly smooth postoperative course she was discharged on October 5, 10 days after her second procedure.

DISCUSSION

Dilitation of the stomach is not a rare complication of surgery of the pelvis and upper abdomen. The real incidence is not available and only personal observations would serve as a basis for frequency The pertinent fact is that the complication of an acute dilated stomach does exist and will occur frequently enough in an active surgical and obstetrical practice to be of concern to individual physicians The use of intra-nasal tube with gastric suction at the earliest sign of persistent upper abdominal distress has almost eliminated this complication as a serious threat to the patient The trauma of abdominal surgery and the accumulation of gas during the forced inhalation anesthesia still seems to produce a high enough incidence of this complication to warrant one remembering it as a cause of severe vomiting, with disturbance of the electrolyte balance and in extreme cases—profound shock.

CONCLUSION

1. A case of profound shock caused by an acute dilated stomach has been presented.
2. Acute dilatation of the stomach is caused by reflex inhibition of the gastric motor mechanism reaching the stomach by way of the splanchnics and vagi nerves—and is similar in effect to vagotomy.
3. Textbooks in obstetrics and gynecology and current literature fail to mention gastric dilatation as a serious complication or a cause of shock. Gastric dilatation may occur insidiously, is progressive and produces alkalosis, acidosis, shock and death—if not recognized.
4. Recognition in the early stages with use of a gastric suction will prevent serious sequelae.
5. Acute gastric dilatation should be considered when profound shock and signs of peritonitis occur in any surgical or eclamptic obstetrical patient. Use of the nasal tube in suspected cases will eliminate the shock state and confirm the diagnosis.

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—1302 Government St.

Lower Nephron Nephrosis*

J. H. HOLLEMAN, M. D.
Columbus, Miss.

Urinary suppression, commonly referred to as the "Lower Nephron Nephrosis," is a very serious problem that is encountered by the surgeon, the internist, the obstetrician, the general practitioner. Probably the most common etiological factor in producing this syndrome is prolonged shock, especially if associated with multiple blood transfusions. The condition is not peculiar to shock, however, and may be caused by 1) intravascular hemolysis, 2) heat stroke, 3) various poisons, notably carbon tetrachloride, and 4) various complications of pregnancy.

From my own personal experience, by far the majority of cases were produced by prolonged shock and multiple blood transfusions. In the Korean War, until we got the artificial kidney in operation, this complication was our most frequent cause of postoperative death.

There are a multitude of theories concerning the exact mechanism by which the pathological process is produced. Here, before discussing the pathology further, let's very briefly consider the basic physiology and anatomy of the kidney. The basic unit of the kidney is the glomerulus which drains into the loop of Henley which in turn passes into the convoluted tubule, then into the collecting tubule and the calices. The fluid produced by the glomerulus is referred to as the glomerular filtrate and in composition is essentially the same as blood plasma minus the plasma proteins. Only one per cent of the glomerular filtrate is excreted as urine, the other 99 per cent being reabsorbed by the process of osmosis in the kidney tubules. Ninety-five per cent of the chemicals in the glomerular filtrate is also reabsorbed by the tubules before reaching the kidney pelvis as urine.

The most plausible explanation of the lower nephron syndrome is that in shock there is an anoxia to the kidneys. As a result of this oxygen privation the kidney tubules undergo necrosis. On microscopic examination the glomeruli appear normal, the chief lesion being necrosis of the kidney tubules with deposit of heme. In this disease it is believed that the glomerular filtrate remains unaltered but that urine doesn't reach the kidney pelvis because the entire filtrate is completely reabsorbed by the damaged tubules.

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*Presented at the quarterly meeting of the Northeast Mississippi Medical Society, June 1955.

Early recognition of the lower nephron syndrome is of vital importance in management of the disease. Any patient who is considered likely to develop the condition should be kept under close observation. Accurate measurement of the intake and output of fluids often gives the first clue of developing tubular damage. After correction of the shock state the urinary output may be satisfactory for eight to sixteen hours before the tubular damage is manifested by oliguria then anuria. After the onset of anuria the patient develops the typical signs and symptoms of uremia. He becomes semi-comatosed and mentally confused. Muscular twitching and convulsions are manifestation of late stages. Ulcerative colitis with hemorrhage is occasionally seen. The blood pressure steadily climbs. The pulse is rapid and weak. The heart sounds are weak, probably due to the toxic action of retained potassium on the cardiac muscles.

Laboratory data are helpful in determining the course and prognosis of the disease. In the early oliguric stage the specific gravity is high, but it steadily declines and just before complete anuria ensues it has reached a low of 1.009, slightly above that of plasma. The blood levels of potassium, sodium chloride, phosphates, other electrolytes and waste nitrogen products steadily increase as the disease progresses. The electrocardiogram is helpful in determining how the heart is withstanding the potassium intoxication.

Occasionally oliguria is seen following extensive surgery, trauma, or blood loss in the absence of any actual kidney damage. This is especially true in the dehydrated patient. As a diagnostic measure to determine if we are dealing with a state of dehydration or true tubular damage, we found the following test quite helpful. The bladder is drained and the catheter left in place. Five hundred cc. of distilled water is given intravenously as rapidly as it can be administered. If the case is dehydration there will be a substantial output in a very short while. If there is tubular damage the urinary output will not be affected.

Conservative management of the lower nephron state is essentially a matter of fluid and electrolyte control. Before the nature of the disease was understood attempts were made to "flush" the kidneys by administering large amounts of intravenous fluids. This usually resulted in overloading the circulatory system and death resulted from pulmonary edema. Today we know that the average insensable loss of fluid, that is through respiration and sweating is approximately 1200 cc. This should be the maintenance fluid therapy for the patient in the anuria state. If the patient is having fluid loss through diarrhea of gastric lavage the amount should be accurately determined. Fluid loss through these means plus the 1200 cc. insensable loss is then the maintenance fluid therapy.

Maintenance of electrolyte balance presents a considerably more difficult problem than fluid balance. Daily sodium chloride determinations are helpful in determining the salt requirements. The hyper-potassemia and acidosis are much more difficult to regulate. The acidosis can be combatted by giving six-molar lactate solution intravenously.

The cation exchange resins were helpful, but in my experience a very inadequate method of removing the excess potassium. The cation exchange resins are mixed in solution and given as a retention enema. They absorb a considerable amount of potassium through the rectal and colon mucosa.

An important fact to bear in mind is that should the lower nephron patient require blood, the freshest possible blood should be used. We know that the potassium content of the red cell as well as other cells is many times that of the plasma. If some of the cells in the transfusion are hemolized it will markedly elevate the plasma potassium level.

We know that in most cases the tubular damage is a reversible process, and if life can be maintained through the anuric phase, urinary function will return and the patient will recover. Recovery will usually occur in three to twenty-one days.

In my experience the longest anuric phase in which the patient was treated by the conservative method and survived was fourteen days. This case was that of a 24-year-old Puerto Rican who sustained a severe abdominal wound at night when an outpost was over-run by the enemy. The outpost was retaken the next morning and the wounded soldier was brought into the hospital by helicopter. He had a transection of the small bowel and a perforating wound of the sigmoid. After resuscitation his abdominal wounds were repaired and a diverting colostomy was done. His immediate postoperative course was uneventful except that there was no urinary output. On the fourth postoperative day he showed signs of uremia. He became confused, his blood pressure became elevated, and his N.P.N. was steadily rising. On his eighth postoperative day he developed a rather massive hemorrhage from the colostomy due to ulceration in the colon. This was treated with fresh whole blood transfusions. On the fourteenth postoperative day he began to pass a small amount of urine with a very low specific gravity. The output gradually increased, and on the sixteenth postoperative day he was passing a large volume of urine. The specific gravity gradually returned to normal. During the anuric phase he was maintained on 1200 cc. of fluids daily plus the amount of fluid lost through gastric lavage and the colostomy. Cation exchange resins were used to help combat the hyper-potassemia.

If the patient appears to be steadily deteriorating on conservative management, there are two other courses open to us. One is the peritoneal lavage and the other is the artificial kidney. Peritoneal lavage is a procedure in which the peritoneal cavity is irrigated with an electrolyte solution roughly similar to plasma. The solution is passed into the peritoneal cavity through an opening in the upper abdomen and is removed by suction through an opening in the lower abdomen. By the process of osmosis the accumulated electrolytes and waste nitrogen products are eliminated as the solution passes over the large peritoneal membrane.

Observation of the artificial kidney consists of a large vat filled with solution approximately that of blood plasma in electrolyte contents. Submerged in the vat is a rotating drum and around the drum is cellophane tubing. In treating the uremic patient with the kidney the tubing is first filled with blood. A canula is then placed in the radial artery and blood passed through the tubing on the drum then back into the patient via a vein in the forearm. As the blood passes through the tubing, by the process of osmosis the excess electrolytes are withdrawn.

The patients are frequently in coma when dialysis is started and when it is completed they are perfectly rational and their blood chemistry has returned to normal.

Gastric and Duodenal Ulcers*

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My subject deals with some of the controversial points in the management of gastric and duodenal ulcers. From the title of this paper you of course realize that there is a wide diversity of opinion on practically all of these points on which I wish to focus attention today. I think, therefore, it behooves each of us who is doing gastric surgery, to analyze carefully and to study these various points of controversy and to arrive at logical and sound conclusions of action in these cases based on the long experience of other surgeons and on experimental results. This includes keeping abreast with the current literature and closely inspecting and evaluating the multiple articles and theories which are constantly appearing on this subject.

Gastric and duodenal ulcers are entirely different so, first, let me emphasize that we should avoid the term "peptic ulcer" in our diagnoses and consider the gastric ulcer and duodenal ulcer as offering completely different problems. Dr. Dragsted first emphasized this difference by his experiments and reports on quantitative nightly secretions of acid. In the patients with duodenal ulcer, the quantitative nightly secretions showed an average of 70 milliequivalents of chloride as acid. In the patients with gastric ulcer, the average quantitative nightly secretion was 20 milliequivalents, and in the patient with a normal stomach, the quantitative nightly secretion was again 20 milliequivalents of chloride as acid. So we see that the patients with gastric ulcer in general have normal quantitative nightly secretions; whereas, patients with duodenal ulcer have a tremendous increase in acid secretions. Dr. Reed Edwards, the Professor of Surgery, at the University of Maryland, used to emphasize the use of the levine tube in these patients with duodenal ulcer to obtain the number of cc. of gastric secretion during a night prior to undertaking surgery. Large amounts of secretions were often obtained in these patients with duodenal ulcer, and he used this as a criterion to assist in determining the amount of stomach to remove at surgery, the more secretion and acid, the higher the resection. But the most important factor indicated, I believe, by these determinations of nightly secretions performed by Dr. Dragsted, is *the importance of continuing medications* as milk, antacids, and antispasmodics during the night hours when the acid secretion is so high. All too frequently, we have the patient follow a rigid routine during the day and forget all about it during the night when the acid secretion is at its highest.

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I would like initially to direct my discussion briefly to gastric ulcers. The trend in recent years has been most interesting. I can recall quite clearly that in 1947, the question arose during a class discussion with Dr. Alfred Blalock and Dr. Mark Ravitch, who is now the Professor of Surgery at Sinai Hospital in New York, as to how long one should treat a gastric ulcer conservatively. Dr. Blalock carefully diagrammed on the blackboard a large illustration. He pointed out that 90 per cent of the ulcers in position 1 were benign. The ulcers in position 2 were possibly malignant, and the ulcers in position 3 were to be considered malignant until proved otherwise by operation. The question then arose as to how long one should treat these ulcers on the lesser curvature and in the antrum conservatively. The answer Dr. Blalock gave at that time was rather vague and he said possibly two or three months. Now, that was in 1947. My notes indicate that in 1949, two years later, during a lecture section by Dr. H. Williams Scott, who is now Professor of Surgery at the University of Vanderbilt, this same question again arose, and Dr. Scott said he would probably use conservative treatment on ulcers on the lesser curvature and in the antrum from four to six weeks. The duration of conservative treatment was decreasing. Two years ago we had reached the conclusion based on reports by various groups all over the country, that it is wise to defer all medical treatment and to proceed with operation on any gastric ulcer as soon as the diagnosis is definitely established. Possibly the only exception to this rule is the very young patient who is under a great deal of tension and strain and develops what is spoken of as acute superficial gastric ulcer. A short trial of conservative treatment in such a case would be in order.

Reports on the percentage of malignancy in gastric ulcers vary widely all over the country. A report on a series from the Johns Hopkins Hospital stated that ten per cent of all gastric ulcers were malignant, and during exactly the same period, a series from the Mayo Clinic stated that 40 per cent of all of their gastric ulcers were malignant. It is important to emphasize that at surgery, all too frequently it is impossible to differentiate a malignant gastric ulcer from a benign gastric ulcer. Even a frozen section of such a specimen is often times indefinite, however, should be resorted to wherever possible. If a gastric ulcer is benign, a simple wedge resection or a modified subtotal gastric resection is all that is necessary. The procedure must be fitted to the patient. Marginal ulcers occur in less than one per cent in these patients probably as a result of the low acidity present.

In carcinoma of the stomach, it has been shown at surgery that 88 *per cent* of these patients have *positive* lymph nodes. Because of this, many of the larger clinics for a period of time resorted to the total gastric resection in these patients. It is interesting to note, however, in recent reports from the Lahey Clinic, the Mayo Clinic, from Dr. Sweet's Group, and from Dr. Longmeyer on the west coast, that the survival rate *has not* been increased by total gastrectomy over subtotal gastrectomy in these patients. The five-year survival rate in each group; that is, total gastrectomy vs. subtotal gastrectomy for carcinoma of the stomach runs about 20 per cent. Of course, the mortality and morbidity in the patients undergoing total gastrectomy is undoubtedly considerably increased over those undergoing subtotal gastric resection. We feel that the so-called radical subtotal gastric resection, whenever possible, is the procedure of choice in these patients with gastric carcinoma. We realize that there will be a certain number of patients who have the so-called leather bottle stomach caused by infiltrating carcinoma in which it would be necessary to resort to the total gastric resection. If the tumor is present in the lower part of the stomach, one should take a minimum of 4 to 5 cms. margin of normal stomach above the growth plus the first portion of the duodenum and the lymph nodes in the inferior gastric group, the suprapyloric group and as many of the nodes as possible in the superior gastric group. If the tumor is in the upper end of the stomach, one should take a minimum of 4 to 5 cms. of normal stomach below the growth plus the lower end of the esophagus and the nodes in the pancreaticolienal group and the superior gastric group. In this case, one may also possibly remove the spleen and the tail of the pancreas. The remaining lower end of the stomach would then be brought up anastomosed to the lower end of the esophagus. If the tumor extends into the duodenum or pancreas, possibly a palliative procedure in the majority of cases, would be of choice.

DUODENAL ULCERS

We are all familiar with the indications for surgery in duodenal ulcers; namely, perforation, hemorrhage, pyloric stenosis, failure of medical management, and some people add intractable pain. I don't think that there is much difference of opinion on these points. I do feel, however, that it is imperative to emphasize "adequate medical treatment," before any surgery should be undertaken, and I am afraid that all too frequently, the medical treatment is haphazard, inconsistent and completely inadequate.

I know that most surgeons still believe that operation is necessary in cases of perforation of duodenal ulcer in spite of the fairly recent papers which have appeared from England and from some areas in this country dealing with conservative treatment of perforated duodenal ulcer using the levine tube suction, antibiotics, etc. All of the surgeons whom I have known have felt that this is extremely dangerous and misleading.

OPERATIONS IN CASE OF PERFORATED DUODENAL ULCERS

The question of simple closure of a perforation or subtotal gastric resection at the time of operation often arises. In some of the larger clinics, primary resection at the time of operation for perforation of a duodenal ulcer is being done, but we have always felt that simple closure is preferable in all cases possible, in these extremely sick, often shocked, patients. Later resection may be indicated, but if these patients are put on adequate medical treatment, such resection may occasionally be avoided. Rarely, one may have an extremely large perforated ulcer with a surrounding area of induration of such extent that a primary closure cannot be adequately performed and hence, subtotal resection resorted to.

Next, I would like to touch briefly on the subject of gastric hemorrhage. The question of when to operate in case of such hemorrhage is always an interesting one. If you have a patient admitted with gastric hemorrhage from an ulcer, you are immediately faced with the problem, is the bleeding going to stop or not? Dr. Aird of Guys Hospital in England was quite interested in this problem, and in reviewing their cases, he found that in patients with massive hemorrhage about 10 per cent of these go on to death unless treated surgically. In other cases where the bleeding was less, but continuous, irreversible changes occurred and some of these went on to death in from three to eight days. Dr. Aird tried to set up certain criteria to assist in making the decision as to when to operate on these patients admitted with gastric hemorrhage from an ulcer. He noted that the incidence of death increases with age. Of course, this is due to the sclerotic alterations in the arteries of elderly patients preventing collapse and hence, clotting of the vessel. Rarely did these patients die from hemorrhage if they were under 40 years of age. Dr. Aird listed four factors which he called his requirements for operation in these patients with hemorrhage.

1. Over 50 years of age.
2. Repeated bleeding prior to admission.
3. Repeated bleeding after onset of medical treatment.
4. Continuous pain after onset of medical treatment.

If a patient had two of these, he felt that operation was necessary. Of course, these are not dogmatic rules, but such criteria may be of help in making a decision on your next patient with gastric hemorrhage.

Not so many years ago, it was felt that the levine tube was contraindicated in these patients who were having gastric hemorrhage. It was stated that the levine tube would cause increased peristaltic movements in the stomach and thus, possibly increase the bleeding. The opinion on that has changed in recent years. I know of no quicker way to ascertain whether a patient is continuing to bleed or not than by inserting a levine tube immediately on admission to the hospital after patient has been properly sedated and reassured, and observing the aspirated secretions. If bright red blood continues to appear after a period of medications, observation and evaluation, exploratory laparotomy is probably indicated in most such cases to prevent those deaths which would occur from shock or the so-called irreversible changes which occur with persistent bleeding.

We do not hesitate to use a swallow of heavy barium early during the course of these patients with gastric hemorrhage, in the attempt to localize the bleeding point.

Occasionally the question arises as to whether bleeding is coming from the esophageal varices or from gastric or duodenal ulcer. In the cases where there is some suspicion that the bleeding may be coming from esophageal varices, the sengstaken tube which is a three lumen tube containing two balloons and used for tamponading esophageal varices, can be of great assistance in establishing the diagnosis, as well as controlling the bleeding if the source is from esophageal varices.

But now to return to some of those controversial questions in regard to surgery for duodenal ulcer.

First, let us consider high resection vs. low resection. You recall that Billroth did the first gastric resection in the 1890's. He did an antrectomy with an end-to-end anastomosis. It is interesting to note that many surgeons are returning to a modification of this operation today; notably, Dr. Harkins and his group at the University of Washington at Seattle. Shortly after Billroth did his first operation, Finsterer came out with his so-called Finsterer exclusion operation. This procedure did not work well due to the fact that there is a hormonal factor present in the antral mucosa which activates the acid secreting glands of the fundus and body of the stomach, and as long as this mucosa is present, its hormone stimulates acid secretion and hence results in a high incidence of marginal ulcer. At surgery, therefore, one should remove this source of possible acid stimulation, as well as a great percentage of the acid secreting glands. The subtotal gastric resection today is aimed at these two factors. Most authorities say that we should try to remove about 75 per cent of the stomach to get a maximal number of the acid glands and to remove the hormonal factor present in the antrum. In these cases, then, one should have very few recurrences or formation of marginal ulcer. The objection to a simple gastroenterostomy in the young person who still has a high acid secretion is the fact that they tend to develop a higher percentage of marginal ulcers. In the elderly patient who has an old burned-out ulcer with scarring and obstruction, many of these have a normal acid secretion and hence, gastroenterostomy would be the procedure of choice. I think then that it is extremely important that we take the time prior to surgery to do a gastric analysis and determine the gastric acidity. This will certainly aid in fitting the operative procedure to the patient.

The next controversial question deals with a short loop vs. a long loop gastroenterostomy. This gets us into the field of posterior gastroenterostomy vs. anterior gastroenterostomy. A very interesting experiment was performed by Drs. Mann and Williamson. Some of you are probably already familiar with the Mann-Williamson dog. The following slide illustrates the operative procedure performed on these dogs. This surgery was performed so as to transfer all of the duodenal secretions away from the point of the gastrojejunostomy. Eighty to eighty-five per cent of these dogs developed stomal ulcers. If the dogs were given histamine in beeswax, 100 per cent of them developed stomal ulcers. (The hormone in the mucosa is a histamine-like substance). Hence, these men demonstrated that the further one goes down the small intestine to make the anastomosis to the stomach, the more apt marginal ulcer is to occur.

With these factors in mind, then one can understand why Wangensteen's criteria in subtotal gastric resection were as follows:

1. Seventy-five to eighty-five per cent gastric resection so as to remove the antrum with its acid-stimulating hormone and the body of the stomach with the acid-secreting glands.
2. A short loop gastroenterostomy so that the stoma is in close proximity to the alkaline duodenal secretions.

Both of these factors are emphasized in the effort to prevent the formation of marginal ulcer.

It is most interesting to note as I have previously stated, how many of the large clinics these days are advocating the use of the Billroth I procedure; that is, the so-called gastroduodentostomy where the duodenum is first freed and mobilized, and after adequate resection of the stomach, the duodenum is then anastomosed directly to the stomach.

Dr. Harkins and his group have clearly demonstrated that if the time is taken initially to properly free and mobilize the duodenum and stomach; that a 75 to 80 per cent gastric resection, if necessary, can be performed and still the anastomosis between the remaining stomach and the duodenum can be done without undue tension on the suture line. This certainly appears to be a more physiologic procedure. It eliminates the gastrojejunostomy. It places the stomach contents into the portion of the small intestine best adapted to receive them; and I believe that there is a lower incidence of marginal ulcer, and a lower incidence of dumping syndrome. There have been reported cases in which a previous gastrojejunostomy resulted in a continuation of malnutrition and weight loss, with excessive fats and proteins being excreted in the stools. In this reported series of cases, the gastrojejunostomy was broken down at surgery and converted to the modified Billroth I with a consequent reversal of the clinical course and excellent results.

Aspects of the Ulcerative Colitis Problem*

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One of the most significant diseases affecting the alimentary tract of man is chronic ulcerative colitis. This disease may be produced by specific agents such as bacillary dysentery, amebiasis, lymphopathia venereum, vitamin deficiencies, uremia, mercury poisoning and some of the newer antibiotic drugs. Chronic idiopathic ulcerative colitis, with which this report deals, may occur at any age and affects the sexes about equally. The disease has been reported among the newborn, in infants and in the aged. The greatest incidence occurs between the third and fifth decades. The cause remains unknown. Periods of remission and relapse characterize the disease. The most serious cases of ulcerative colitis require the meticulous care of the internist or gastroenterologist and the surgeon, with the help, at times, of a psychiatrist.

ETIOLOGY

No specific cause has been found for this disease process. Many factors have been advanced as possible etiologic agents of this disease. Possible causes include: 1) infection, 2) allergy, 3) deficiency disease, 4) lysozyme, 5) pancreatic enzymes, 6) psychosomatic hypothesis.

INFECTION: Because of the similarities of bacillary dysentery and idiopathic ulcerative colitis, many attempts have been made to establish a relationship. Such attempts have thus far proved futile. Bargen's[1] claim that a gram positive diplococcus is an etiologic factor, especially in the variety classified as Type I thrombo-ulcerative colitis, is not generally accepted.

ALLERGY: Andresen[2] and Rowe[3],[4] have been strong proponents of allergy as the basis of this disease process. Their conclusions are based on the favorable outcome of such patients, when in their management, food allergy was stressed. As yet, it would seem that food allergy has not been proved to be the cause of ulcerative colitis. It is usually agreed, however, that food allergy may occur in the disease and this fact should be borne in mind in the handling of the over-all problem. The fact that the bowel possesses connective tissue lesions and that arthritis, erythema nodosum, and glomerulitis occur as complications suggested to Levine[5] that ulcerative colitis may be a collagen disease, the pathological changes having occurred as a result of a hypersensitivity state.

DEFICIENCY DISEASE: Gill[6], in 1945, suggested the responsible factor to be the lack of an essential ingredient of the gastro-intestinal mucosa. Ehrlick[7] is of the opinion that chronic idiopathic ulcerative colitis could be due to a deficiency of an antiproteolytic enzyme in the colon. He reasons that this deficiency subjects the colon mucosa to autolysis by proteolytic enzymes passed into the colon by a hypermotile small bowel.

LYSOZYME: Although the observations of Prudden and Meyer[8] are very intriguing and suggest the possible role of lysozyme in the production of this disease, no conclusive proof has as yet been established. Hiatt[9] et al. proved that the primary source of lysozyme from the ulcerative colitis stool is the invading granulocyte. It was shown that when the leukocytes were separated from the mucus, no lysozyme was to be found in the mucus fraction, unless extensive autolysis of the leukocytes had occurred. It was demonstrated, also, that granulocytes did not absorb lysozyme from the surrounding area. The observations of Meadows[10], Janowitz[11] and Glass[12] have shown that lysozyme has no mucolytic action against colonic mucus, thus making it doubtful that lysozyme is important in the production of ulcerative colitis.

PANCREATIC ENZYMES: The suggestion of Portis[13] that the proteolytic enzymes of the upper gastro-intestinal tract could be a causative factor have largely been disproved. He observed damage to the mucosa of the colon in the dog after instilling a solution of 2 per cent trypsin.

PSYCHOSOMATIC FACTOR: Beginning with the work of Murray[14] in 1930, a long series of investigations have been undertaken regarding the role of the psyche in ulcerative colitis. With the advent of the chemotherapeutic and antibiotic drugs the emotional factors as a contributing cause of this disease were pushed into the background. Many authorities, including Machella[15], believe that this disease is a psychosomatic disorder. Characteristic personality traits such as emotional instability and immaturity, hypersensitivity and fear are prone to be present in these high-strung, frustrated individuals. It has been demonstrated that a definite relationship exists between certain stress-producing factors and changes in the function of the colon. The colonic mucosa is known to undergo rather specific changes in certain emotional states. During phases of anger, resentment or hostility, the mucosa becomes hyperemic, engorged and hyperactive. The mucosa is pale and the bowel relatively quiet during periods of tranquillity. When pain, fear and anxiety are experienced, pallor of the mucosa and inhibition of motility are the result. Embarrassment may produce flushing of the bowel wall.

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The mechanisms by which emotional factors affect the colonic mucosa in the ulcerative colitis patient are not clear, but are possibly concerned with the automatic nervous system. Experiments on lower animals involving stimulation of the parasympathetic nerve supply of the colon produced changes similar to those noted in the human being in response to anger, resentment and hostility. Parasympathomimetic drugs such as mecholyl, acetylcholine and prostigmine were used in a recent study by Nickel[16] et al. with the transient production of changes consisting of edema, increased vascularity, submucosal hemorrhages, and superficial erosions of the surface mucosa of the dog's intestine. Such changes as produced appeared to the authors not suitable for use in the study of methods of treatment of ulcerative colitis. The sympathetic division may also contain excitatory effector fibers. Differences in response to various stimuli might readily account for the occurrence of ulcerative colitis in some and only a so-called irritable colon in others.

Sappington[17], in his study of nitrogen metabolism in patients with chronic ulcerative colitis, although he does not consider this disease as primarily a manifestation of protein deficiency, stresses the fact that protein deficiency was a uniform finding in these patients, and points out that a positive protein balance may be a necessary, though doubtless not sufficient condition, for clinical remission.

PATHOLOGY

The chief pathological changes in ulcerative colitis occur in the mucosa and submucosa. Grossly, the lesions are confined to the colon in approximately two-thirds of the cases. Ulcerative colitis involving the ileum occurs in about one-third of the cases. By gross examination in the pathology laboratory, external abnormalities of the resected specimen may be difficult to see. When viewed at operation, the colon may present an abnormal redness and spasticity. A loss of the normal haustral markings due to the pronounced spasm of the colonic muscle is evident. The length of the colon may be decreased by approximately one-third due to the contracture of the colon from scarring. The mucosal surface undergoes diffuse changes involving ulceration, inflammation, and congestion. Longitudinal ulcers are found along or between the tenial muscle landmarks with cross-connecting ulcerative gutterings which jointly may form a network. Between ulcerations the mucosa is bright red or reddish-purple with edematous swellings that, at times, overhang and hide the mucosal surface. Tags of inflamed mucosa may dangle free except for narrow pedicles to produce pseudopolyps. Mucosal bridges are formed when the pseudopolyps remain attached at both ends. The left colon, especially the rectosigmoid, is involved in the majority of the cases. Ulcerative colitis confined to the right side is relatively rare. *Microscopically,* the colon exhibits superficial damage, the injury being confined mainly to the mucosa and submucosal layers. In attempting to determine the type of lesion originally responsible for ulceration, Warren and Sommers[18] found in about half of the ulcerative colitis cases no specific indication was present. In this indeterminate group the inflammatory process is exudative and reparative without granulomatous tendencies. In 40 per cent of non-specific ulcerative colitis cases, where the origin of the disease could be traced, it was found that the lesion began with the collection of polymorphonuclear leukocytes in the bases of the colonic submucosa at its base. This is the earliest pathological lesion found in the commoner type of non-specific ulcerative colitis. The so-called vasculitis colitis makes up the remaining 10 per cent. The ulcers here tend to be large or deeper with greater irregularity. Microscopically, the lesions are known to be an inflammatory necrosis of the blood vessel wall affecting arteries or veins thus leading to vascular occlusions with infarction of the adjacent colon. Swartz[19] has emphasized that since the principal changes in ulcerative colitis are localized to the submucous connective tissue of the intestine, drugs having affinity for connective tissue should be employed.

CLINICAL STUDIES

Symptoms may be sudden or gradual in onset and depend on the location, extent and severity of the process. The most common initial manifestation is bleeding. Contrary to common belief, diarrhea is not the usual first symptom. Many cases have their start with severe constipation showing hemorrhagic tendencies shortly thereafter. The stool formation, whether it be formed, diarrheal or constipated, depends upon the nature of the pathological process. When the lesion is confined to the rectum or rectosigmoid, formed or constipated stools are usual, whereas with greater extension of the process proximally or right-sided involvement, diarrhea is the rule. A premorbid history of constipation is present in a high percentage of the patients. Brief episodes of diarrhea occur in a smaller number with gradual onset of symptoms. The first sign is presence of blood or mucus in the stool. In time, the stools become softer and finally assume a liquid state, the bowel movements becoming more frequent as urgency is noted. Examination of the stool will show, in addition to the fecal material, serous exudate, blood, pus, mucus and gas. With an increase in severity of the condition tenesmus is noted. At times, the onset is more sudden and explosive, the stools assuming a more watery consistency and contain blood, gas and mucus. In the acute fulminating stage almost continuous liquid discharge of gas, blood, pus and mucus will be noted. Rectal soreness may accompany the tenesmus. Abdominal cramping occurs in all but the mild cases. Fever of the intermittent or remittent type may be present, also tachycardia. A slight fever, occurring in the absence of diarrhea, may be the first clue to ulcerative colitis.

In the physical examination of the more seriously ill patients, the presence of dehydration, pallor and vitamin deficiencies is evident. Many appear conspicuously malnourished with evidence of weight loss. Arthritis and erythema nodosum are seen as systemic manifestations of this devastating disease process.

LABORATORY STUDIES

The most significant findings from the laboratory tests involve anemia of the hypochromic normocytic or a hypochromic microcytic type. The chloride and bicarbonate of the blood may be depleted. The total serum proteins are often depressed with a reversal of the albumin-globulin ratio. The prothrombin concentration may be lowered.

ROENTGENOLOGIC

The roentgenologic changes do not consistently parallel the severity of the clinical manifestations in ulcerative colitis. Characteristic of the early stages are the serrated or "saw-tooth" borders of the barium column with associated spasm and irritability. With progression of the lesions to involve greater amounts of the mucosa, the normal pattern is destroyed, the abnormalities being shown more vividly by the double contrast technique. With progression of the disease, the "lead-pipe" appearance is noted with the absence of haustral markings, colonic contraction and narrowing of the lumen. Hyperplastic polypoid formation is detected by the presence of oval, irregularly placed filling defects. The terminal ileum is best shown, as a rule, during the barium enema procedure and when involved, is seen to be dilated and rigid with loss of its normal outlines. Using the barium meal, the small intestine may show either hypomotility or hypermotility. The small bowel study is of a special importance where regional enteritis is suspected.

SIGMOIDOSCOPIC FINDINGS

In the acute stage of the disease, early changes consist of very small petechiae and edematous mucosal changes. The mucosa then progressively becomes more hyperemic and glistening with excess of mucus formation. The granular surface of the mucosa will bleed easily when swabbed. The edema may hide the ulcers. With extension of the disease process, the normal mucosa tends to disappear and ulceration with denudation are more conspicuous. A thick mucopurulent adherent exudate is now present. It is unwise to use a sigmoidoscope during an acute fulminating attack, because of the great pain experienced by the patient, due to spasm and irritability of the diseased part. The bowel may be easily perforated at this time. In the quiescent chronic stage of the disease, the normal picture of the bowel wall is greatly distorted and the lumen is narrowed; the mucosa is pale with little or no exudate and does not bleed readily when swabbed. Pseudopolyps may be present.

DIFFERENTIAL DIAGNOSIS

Amebiasis is differentiated by the detection of Endamoeba histolytica in the stool specimen, by the sigmoidoscopic picture of irregular, discrete, undermined ulcers, with practically normal mucosa between the lesions. Also, ulcerative colitis does not respond to the amebicidal drugs. Often confused with ulcerative colitis is bacillary dysentery which may be diagnosed by the detection of its specific dysentery organisms in stool culture. Diverticulitis of the colon may, in part, clinically resemble ulcerative colitis, but the x-ray will clearly separate the two entities. Diverticulitis of the colon usually occurs in an older age group. Regional enteritis is at times confused with ulcerative colitis and may be differentiated by a usually less severe clinical course, normal sigmoidoscopic demonstration, and usually absence of gross blood in the feces. The terminal ileum in ulcerative colitis is usually dilated, whereas in regional enteritis it is constricted. Occasionally, primary tuberculosis of the bowel may produce ulceration. This condition is relatively rare and usually associated with pulmonary disease. Involvement of the sigmoid colon by lymphogranuloma venereum usually occurs in the female sex, is accompanied by inguinal adenopathy, late rectal strictures, a positive Frei test and an elevated globulin of the blood. A primary malignancy of the colon is usually differentiated by x-ray examination. The incidence of carcinoma in chronic ulcerative colitis must not be overlooked. Symptoms in the early stages of chronic ulcerative colitis are very similar to those of hemorrhoids and thus result in an unwarranted hemorrhoidectomy, which may aggravate the colitis[20].

EXTRACOLONIC PROCESSES IN ULCERATIVE COLITIS

In the course of ulcerative colitis certain conditions outside the colon may be of importance. The small intestine, in part or all, may be involved by an inflammatory ulcerative process. Small bowel x-ray studies should be a part of the work-up of any ulcerative colitis patient. Hepatic insufficiency may occur in ulcerative colitis. Rarely, colitis may precede the development of portal cirrhosis. Interstitial pancreatitis may occur in association with active chronic ulcerative colitis. Renal tubular degeneration and necrosis was found by Jensen[21] and others in cases of ulcerative colitis coming to necropsy. Numerous metabolic disturbances have been encountered in ulcerative colitis cases. Included among them are decreased urinary excretions of 17-ketosteroids, abnormal urinary excretions of corticosteroids, diminished serum protein, low calcium, potassium, sodium and chloride levels.

COMPLICATIONS

Local complications of idiopathic ulcerative colitis consist of obstruction, hemorrhage, perforation with localized or generalized peritonitis, stricture formation, perianal or rectal abscesses and fistula formation. Inflammatory pseudopolyps in some cases may undergo malignant change. Extracolonic complications are those of acute and chronic arthritis, iritis, erythema nodosum, poor physical development, amenorrhea, venous thrombosis of the legs, cerebral hemorrhage from extreme acidosis and symptoms of mineral deficiency.

ILLUSTRATIVE CASES: Case I: Mrs. T.D.B., a 41-year-old housewife, for a period of eight years experienced a burning discomfort in the stomach with loose stools and the intermittent passage of blood and mucus. Three serious hemorrhages occurred from the colon, one almost exsanguinating; also, complications of anemia, erythema nodosum, and advanced rheumatoid arthritis are present. Moderate hypermetabolism and moderately severe hypertension are exhibited also, along with a tremendous amount of inner tension.

Case II: Mrs. J.A.F., a 43-year-old white housewife, classically illustrates the role of emotional stress in ulcerative colitis. Complicating the colitis were a fistula and fissure-in-ano, also a moderate degree of anemia. Hepatic insufficiency was also established. Although outwardly pleasant and cooperative, there was evidently a significant degree of inner tension. Because of the progressively downhill course on medical therapy and the rectal complications an ileostomy with colectomy was advised. The patient refused this for a period of several months, but finally consented to an ileostomy, which was performed with the understanding that a colectomy would follow. The first few postoperative days were uneventful and the outlook seemed encouraging. However, because of an emotional upset, a conspicuous turn for the worse suddenly developed. She became moody, highly emotional and refused to eat. Frequent spells of nausea and vomiting with gagging became a prominent feature of her illness. In spite of dramatic attempts to improve her emotional status, including the care of a psychiatrist, and persistent efforts to control the electrolyte imbalance, her course was steadily downhill. After months of impenetrability regarding the cause of such emotional stresses, she finally confessed that as a child, she was very nervous and frequently had spells of nausea and vomiting when things did not go her way. She had married an honest, humble, grave-digger, but one beneath her intellectually and socially. This had secretly grieved her throughout her life. Apparently her home life, including her husband and children, was inwardly repulsive to her. She stated that she had nothing to live for and would actually welcome death at any time. After satisfactorily balancing her electrolyte pattern, she was discharged to the care of her local physician. She rallied for a few days, but then another emotional situation occurred. She refused to eat and after a few weeks, passed away.

TREATMENT

The therapy of non-specific ulcerative colitis involves the most astute care of the internist and gastroenterologist with the occasional help of a psychiatrist. Surgical intervention is necessary for some of the complications of this extensive disease. The chief objectives in the medical management of this disease are: 1) to induce a remission, 2) to prevent a relapse. Since the cause of this condition is unknown, treatment is primarily symptomatic and supportive rather than specific. Preventive measures include dietary discretion, the avoidance of respiratory infections, and the alleviation of nervous tension. The correction of specific deficiencies such as electrolyte imbalance, dehydration and anemia are imperative steps. The nutritional status of the patient should be corrected by diet providing high calories, high protein, high carbohydrate, low residue with adequate vitamins and minerals, and eliminating the irritating and allergenic type foods. The diet should be attractive and palatable. Adequate protein is needed for proper nitrogen balance and healing of the inflamed colon. When the ordinary foods do not satisfy the necessary requirements, a mixture of a protein digest and a carbohydrate such as "Dextri-maltose" is a helpful supplement. Here, intravenous infusions of glucose, protein hydrolysate, electrolyte and vitamins are relied upon.

The medical management is divided into the treatment of the acute toxic phase and the chronic phase[22].

ACUTE TOXIC PHASE: A. Hospitalization is imperative. Bed rest and good nursing care are vital points. B. Diet: Those able to feed by mouth should be served an attractive wholesome diet, high in protein and calories such as has been mentioned. For the moderately severe toxic patient who cannot properly ingest food by mouth, tube feedings may be necessary. In the severely acutely toxic patient who is unable to feed by mouth or tube, intravenous feedings as outlined above should be followed. C. Fluids: The usual patient will require 1000 cc. of 10 per cent solution of dextrose in distilled water, and 1000 cc. of 5 per cent dextrose in physiologic saline daily. 1000 cc. of an amino-acid preparation is added to this intravenous program. D. Electrolytes: Special attention should be paid to the proper maintenance of the sodium and potassium blood levels. E. Vitamins: Supplementary vitamins should be taken orally unless this route is unfeasible, then parenteral preparations may be substituted. It is convenient to add one ampule of Lyo-BC vitamin preparation to one of the glucose administrations. Crude liver extract with vitamin B complex in doses of 2 cc. every other day is useful. Fifteen mgm. of vitamin K should be added to the intravenous fluids daily, if the prothrombin time is increased. F. Blood Transfusions: 500 cc. of whole blood are given as indicated to correct the anemia and hypoproteinemia. In massive hemorrhages such transfusions may be life-saving. G. Sulfonamides: These drugs are to be used especially for suppurative complications of ulcerative colitis. Most authorities are of the opinion that these compounds exert practically no influence on the course of the disease. Azulfidine, 1 gram four times daily, will occasionally reduce the diarrhea and febrile response. Sulfasuxidine and sulfathaladine, 0.5 to 1 gram four times daily, also appear to be effective at times. H. Antibiotics: Penicillin would seem to induce improvement in some cases. The usual dose is 600,000 to 800,000 units daily. Aureomycin has been tried extensively in the treatment of ulcerative colitis. Streicher[23] et al. administered aureomycin orally to patients with ulcerative colitis and to normal subjects, producing an initial decrease in the number of coliform bacteria, Staphylococci, and alpha, beta and gamma Streptococci. They showed that the average number of these bacteria per gram of stool reaches its lowest point on the sixteenth day of therapy and rises again until the sixtieth day it has reached the level present before aureomycin was administered. After 16 days of aureomycin, the bacterial flora may become insensitive to this antibiotic. Terramycin and chloromycetin have also been used in doses of 0.5 gram four times daily, some patients seeming to respond favorably both subjectively and objectively, but this is by no means a constant result. I. ACTH and Cortisone: These steroids may induce a temporary remission, but are not specific curative agents. Improvement in appetite, general well-being and a reduction in temperature and pulse rate occur; however, the stool frequency and sigmoidoscopic appearance of the rectal mucosa are unaltered. Giant ulcers may appear in the affected colonic mucosa while on ACTH or cortisone treatment[24]. Perforation has been known to occur during the use of these steroids without the usual affect to the temperature or pulse. Since it is recently becoming more evident that peptic ulcer may occur fairly commonly in association with ulcerative colitis[25], the use of ACTH in the latter disease should be handled with caution, as hemorrhagic conditions and perforations have been known to occur from the use of ACTH in peptic ulcer patients. Wirts et al.[27] have recently reported that they consider corticotropin (ACTH) to be an effective therapeutic adjunct in the treatment of ulcerative colitis. To them, it is not a cure, but merely brings about changes similar to a spontaneous remission. They found also that early relapse is amenable to retreatment with corticotropin, but when the relapse is delayed, response is less prompt and somewhat less complete. J. Antispasmodics and Sedatives: A combination of atrophine, gr. 1/150 with phenobarbital gr. 1/3 in capsule form, administered three times daily before meals and before retiring at night, is an excellent mixture. At times, codeine or a tincture of opium may have to be resorted to to reduce the abdominal pain. More recently, Probanthine has been shown to be of benefit. K. ACTIVITY: Return to activity is gauged according to the clinical judgment of the physician handling the case.

CHRONIC PHASE: A. REST: Avoidance of physical and mental fatigue is stressed to the patient. At least eight hours of rest are necessary each night; an afternoon nap, if at all possible, should be included in the program. B. DIET: The diet is to be increased as to the tolerance of the patient. The basic needs for high calorie, high protein, multiple vitamins, etc., have been stressed previously. Oral supplementary protein preparations, such as Protenum, assist in the build-up of the protein deficiency so often seen in this type patient. Multivitamin preparations should be taken daily. C. ANTISPASMODICS AND SEDATIVES: Atropine or belladonna with mixtures of phenobarbital, taken three to four times daily as needed to allay the nervous tension and spastic state of the colon are beneficial to most patients. D. SULFONAMIDES AND ANTIBIOTICS: Some gastroenterologists use sulfathaladine or Azulfidine, 1 gram four times daily with hopeful results. At times, the retention enema containing powdered sulfasuxidine in combination with penicillin is used at bedtime with equivocal results. Some patients have found that occasional "rounds" of aureomycin, terramycin or chloromycetin will produce symptomatic relief. E. PSYCHOTHERAPY: Since ulcerative colitis appears to be, in many of its aspects, a psychosomatic disorder this type of therapy is often of great benefit[26]. Many of the patients are suffering from an inner turmoil due to dysharmony among their physical, mental or spiritual forces. Personality defects with emotional instability and immaturity are conspicuous in a significant number of patients suffering from ulcerative colitis. Various conflicts and frustrations producing resentment and antagonism are seemingly the basis of the symptomatology among this group. In addition to handling other aspects of the medical therapy of the patient, the internist or gastroenterologist must attempt to re-educate the patient in terms of new emotional balance. Some of the patients resent the idea of definite psychiatric consultation and hence do better under the care of the gastroenterologist who has followed them all along. To have the confidence and good will of the patient is vital, if successful therapy is anticipated.

SURGICAL TREATMENT

Complications requiring immediate surgery are[28]: 1) obstruction, 2) perforation, 3) uncontrolled bleeding. Complications requiring elective surgery are: 1) neoplasm, 2) polyposis, 3) granuloma formation, 4) fistulas and sinuses, 5) intractable secondary complications as arthritis, iritis and dermatitis. Surgery for the so-called intractable case is seriously considered when the emotional situation of the patient remains unaltered after intense psychiatric help fails and in those patients in which vigorous medical therapy has been without success. Before surgery is undertaken, it is always wise to re-investigate the small bowel by x-ray, since an ileostomy performed through a diseased ileum will produce suppurative complications and fistula formation. The late Dr. Frank Lahey[29] and Cattell[30] are not in agreement with the recent work at the Crile Clinic[31] where a combined ileostomy and colectomy are performed regardless of the acuteness or seriousness of the patient's condition. They are of the opinion that preliminary ileostomy in the critically acute patient, followed by a partial or complete colectomy, is a much safer procedure than the combined operation of ileostomy and colectomy. McKittrick[32] is also apprehensive of the total or subtotal colectomies and the ileostomy in one state on most patients who need an ileostomy.

CONCLUSIONS

A review of the current status of the ulcerative colitis problem has been presented. Various etiological potentialities have been evaluated with the conclusion that as yet no known specific cause has been determined. The chief pathological changes are illustrated, also the principal sigmoidoscopic findings. The clinical picture, including roentgenological studies, is summarized with differential diagnostic points. Treatment in the various phases, including complications, is critically analyzed both from the medical and surgical viewpoints.

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Within the last hundred years, even within the last fifty, we have seen victories over pain with anesthesia, over the ravages of diseases such as smallpox, rabies, diphtheria, typhoid, yellow fever, and malaria. We have seen tuberculosis almost conquered, hookworm disease understood and on the way out. And it looks as if we are in the beginning of the end of polio. Dr. Jonas E. Salk is accredited a big portion of this victory. He had the scientific vision and practical application to carry through to a realization of an effective immunization. But, as in most human progress, where one person has been able to make discovery, others have made it possible. Polio becomes a victory of the experimental laboratory, and of the people, as well as of an individual doctor and the medical profession. While we rejoice in the victory already in sight, let us keep up our efforts until we know that polio threatens no more. Vision, unity of effort, and teamwork bless the efforts of a people.

While money can never become a substitute for the scientist's creative intelligence, the tempo with which research is conducted, the frequency with which new ideas are explored, and the speed with which laboratory findings are applied clinically, all depend to a large extent on the amount of funds available for research.

Epidemiological studies of large numbers of people are being pressed into the search for causal differences between those who have cancer and those who do not. Differences may lie in habits or even may be due to climate, geography or related to diet, sex, religion, hygiene, smoking, racial inheritance.

The man who "never had a chance" is the man who wouldn't recognize a chance if he met it walking up the street in broad daylight.

A penny will hide the biggest star in the universe if you hold it close enough to your eye.

A New Concept of the Cause of Phlebothrombosis*

WITH A SIMPLE METHOD FOR ITS PREVENTION AND CURE

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INTRODUCTION

I WISH TO postulate a theory of the cycle of events involved in intravascular clotting and to offer a simple means of therapy to interrupt this cycle, once it has begun.

POSTULATE

Injury to the endothelium of a blood vessel is the first essential element for venous thrombosis[1],[4],[10]. This injury is most frequently produced by spasm of the muscles of the calf of the leg, the plantar muscles of the foot, and the muscles of the thigh. Platelets are attached to this very small injured vein[4]. It may be completely occluded and cause no danger, or a tail may form on this small thrombus and continue to grow until it reaches great length, extending as far as the vena cava.

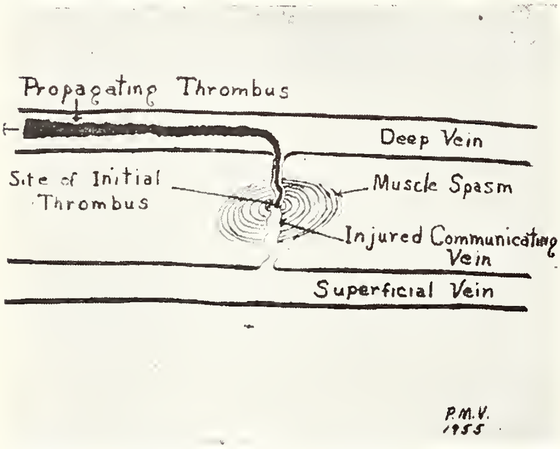

FIGURE I. Muscle spasm produces injury to the communicating vein. From this injured area, a propagating thrombus forms.

The volume of muscle in spasm may be very small, producing nothing more than a mild ache or tired feeling, or no pain at all, or the volume of muscle spasm may be large, producing cramp or "Charlie-horse."

The simple method of treatment I have been using for the past two years is to stretch the muscles that are in spasm until pain is relieved. This greatly increases the blood flow through the veins. Fibrinolysis occurs promptly with resolution of the clot. The relief is quick and miraculous. Rarely is any other form of therapy needed except in cases where there has been delay in early diagnosis, allowing complications to develop. The vessels most easily injured (Figure I) are the small communicating veins traversing the soleus muscles of the calf, the plantar group of muscles of the foot, and the muscles of the thigh. Also, circulation in the lower extremity is more sluggish than elsewhere in the body, which favors coagulation.

PHLEBOTHROMBOSIS

Quick has postulated the most reasonable theory for the clotting of blood and the propagation of a thrombus[1]. According to Quick, the platelets agglutinate and adhere to the injured vein wall. As the platelets undergo lysis, coagulation is initiated and a fibrin clot is formed, enmeshing the cellular elements of the blood along with more platelets. Since the clot is attached only at one end, it will eventually retract and express serum containing thrombin. With rapid circulation, the thrombin is diluted and causes no trouble; if the circulation is sluggish, the liberated thrombin causes coagulation of the fibrinogen of the blood about the mother clot and becomes attached to it. This new clot likewise retracts, expresses thrombin, coagulates more fibrinogen which attaches to the thrombus, thus producing a tail or propagating thrombus. This is the picture of phlebothrombosis.

EMBOLISM

The process of intravascular clotting may then take one of several courses[9],[10]. If the propagating thrombus breaks, we have an embolus that may reach the lungs, if small enough to negotiate the heart. Embolism may produce varying degrees of pulmonary pathology. Some emboli are so small they are never diagnosed[2]. Others produce so much infarction of the lung that death ensues. A large propagating thrombus that becomes dislodged may cause instant death when it reaches the heart.

THROMBOPHLEBITIS

Thrombophlebitis in the legs develops by a vicious cycle of progressive muscle spasm from reflex nerve irritation[9], increased lymph edema, and increased venous obstruction with progressive injury to the veins.

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*Presented before the Section on Surgery at the eighty-seventh annual meeting of the Mississippi State Medical Association, May 10-12, 1955, Biloxi, Miss.

PHLEGMASIA CERULEA DOLENS

If the entire venous returns of the extremity are completely obstructed by thrombi, we have the clinical picture of phlegmasia cerulea dolens with gangrene, requiring amputation of the extremity.

PHLEGMASIA ALBA DOLENS

If the thrombosis is more insidious and all the veins are not occluded and the anteriolar spasm reduces the pressure from the arterial side, we have the clinical picture of thrombophlebitis, which may progress to the more severe clinical picture of phlegmasia alba dolens. Secondary bacterial invasion of the lymphatics, intercellular lymph spaces, and veins follow, unless prevented by chemotherapy or antibiotics. Septic thrombi may form, producing severe complications.

PELVIC THROMBOPHLEBITIS

In pelvic thrombophlebitis, the veins are injured either by trauma[7] or by infection spreading along the veins. The relation of muscles to veins in the pelvis does not favor the pathologic process of phlebothrombosis seen in the legs.

FIBRINOLYSIS

We must keep in mind that clots do dissolve rapidly in the veins, and that a complete reversal of the clotting process does occur. This factor of fibrinolysis has been largely overlooked in the surgical treatment of venous thrombosis.

PRESENT STATUS

Even with anticoagulants and venous ligations, prevention of venous thrombosis has not been satisfactory[3],[12]. Twenty-five to thirty-five per cent (25%-35%) of all deaths from elective surgery and obstetrics are due to complications of venous thrombosis. Anemia predisposes to a propagating thrombus, since clot retraction is abnormally pronounced in severe anemia[1]. Adequate circulation is best accomplished by normal blood volume, a good blood pressure, and by having no obstruction to the venous return from the legs during and after surgery.

SURGICAL INTERRUPTION OF VENOUS RETURN SYSTEM

Surgical interruption of the return venous system above the clot is widely used today[2]. However, there are serious sequelae[11],[14] and marked limitation in activity for the remainder of the lives of most patients having done more than a superficial femoral ligation.

ANTICOAGULANTS

The use of anticoagulants is very hazardous if a paravertebral sympathetic block is done. Also, bleeding may ensue from the suture lines in surgical cases. The use of anticoagulants at the time of surgery, and immediately after surgery, is fraught with hazards as fatal as the emboli we are trying to prevent[13]. Paravertebral sympathetic block with procain is so efficacious[3] that I do not wish to create a state in which it is too hazardous to be used.

OUTLINE OF TREATMENT

The procedure I am using, both for the prevention and for the treatment (cure) of phlebothrombosis, is stretching the spastic muscles. The following slides illustrate the procedure:

(1) Forceful dorsi-flexion of the foot by applying 40-60 pounds of pressure on the ball of the foot to stretch the spastic muscles of the plantar surface of the foot and at the same time the soleus and gastrocnemius muscles of the calf. This pressure is maintained until the pain lessens or subsides—usually about 30 to 60 seconds. Then the patient is asked to exercise the foot and leg actively. The pressure is again repeated, to be sure that complete relaxation of the spastic muscle is accomplished. If so, the patient is very greatly relieved.

(2) Lateral pressure on each knee, with the thighs flexed in the frog position, stretches the adductor muscles of the thigh.

(3) Extension of the thigh at the abdomen stretches the spastic muscles just below the inguinal ligament. This last maneuver can be done with the patient lying on the side or on the edge of the bed. The frog stretching and hyperextension stretching do not require as much force as is required to stretch the calf muscles. This stretching is carried out by the nurse, or by one of the family, every 30 minutes until there is a rapid reversal in the clinical picture. This type of treatment is safe and effective. Most patients state that in 5 to 10 minutes they feel a great change for the better. The only explanation I have to offer for this phenomenon of feeling better is that in the formation of a large propagating thrombus, the blood elements are greatly altered by the clotting mechanism. Anxiety and fear of an impending disaster has been observed by many before the onset of a fatal embolus[9],[15]; with a reversal of the vicious circle, the process of fibrinolysis rapidly dissolves the propagating thrombus, curing the patient.

DIAGNOSIS

The signs of phlebothrombosis are present if we diligently look for them. Homan's sign is negative in many cases because insufficient pressure is applied to the ball of the foot to stretch the deep soleus muscle fibers in the early stage of phlebothrombosis before a long propagating thrombus forms. The thighs must be observed carefully to note involvement of the veins and spasm of the muscles. Tenderness, no matter how mild, is indicative of the early stages of venous thrombosis. The blood pressure cuff technic for applying pressure to the calf muscles is also diagnostic in the thighs[6]. It is an excellent test to be used in conjunction with muscle stretching. It is helpful in locating the exact area of muscle spasm at a time when the process can be quickly reversed. Other useful adjuncts to treatment are elastic stockings, warm compresses, and elevation of the legs. Muscle stretching is useful with surgical interruption of the return venous channels and with the use of anticoagulants. It is recommended because surgery and anticoagulants have not prevented emboli[12]. I know of no contraindications to muscle stretching except bony disease of the extremity. There have been no pulmonary or cardiac emboli "squeezed" out of the extremities by this method. It produces an immediate change in the extremity similar to the relief from paravertebral blocking of the sympathetics, or like relief of pain from early ambulation.

The following slides illustrate exercises the patient may do to stretch the spastic muscles, when ambulant:

(1) Leaning forward with the foot flat on the floor and bearing weight stretches the plantar and calf muscles. Standing on the edge of a step, supported only by the toes and ball of the foot, also stretches these muscles.

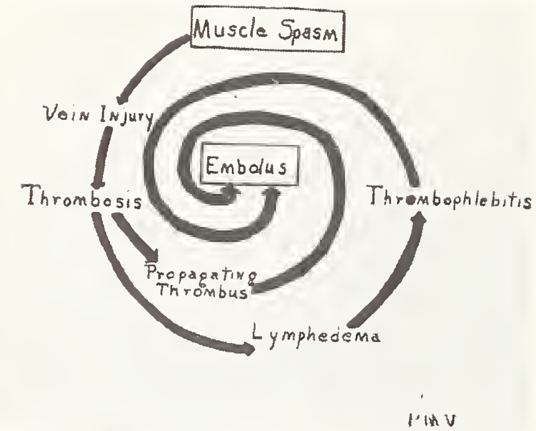
Muscle Spasm
Vein Injury
Embolus
Thrombosis
Thrombophlebitis
Propagating Thrombus
Lymphedema
PMV

FIGURE *II*. The vicious circle of muscle spasm, vein injury, thrombosis with its two routes of progress, leading to an embolus, is shown in this diagram.

(2) The "split" stretches the adductors of the thigh.

(3) A back bend stretches the muscles below the inguinal ligament.

The accompanying diagrams show the vicious cycle, with the precipitating causes of thrombosis—the first drawing shows the basic elements; the second drawing is more detailed, outlining the different routes the process can travel; the third drawing shows the reversal of the vicious circle, with cure of the patient.

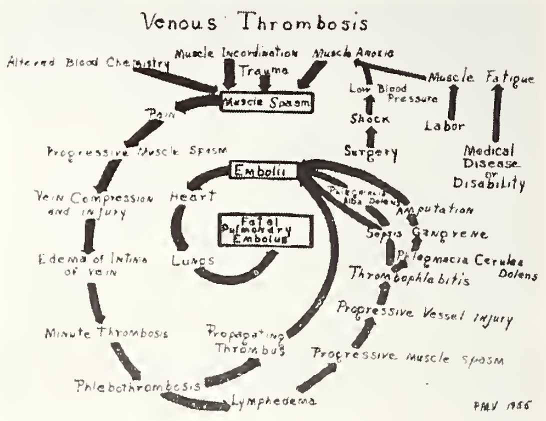
Venous Thrombosis
Altered Blood Chemistry
Muscle Incordination
Muscle Anoxia
Trauma
Muscle Spasm
Muscle Fatigue
Low Blood Pressure
Shock
Labor
Surgery
Medical Disease or Disability
Pain
Progressive Muscle Spasm
Emboli
Vein Compression and injury
Heart
Fatal Pulmonary Embolus
Phlegmacia Alba Dolens
Amputation
Sepsis
Gangrene
Edema of Intima of vein
Lungs
Phlegmacia Cerulea Dolens
Thrombophlebitis
Progressive Vessel injury
Minute Thrombosis
Propagating Thrombus
Progressive muscle spasm
Phlebothrombosis
Lymphedema
PMV 1955

FIGURE *III*. This drawing shows the medical, obstetrical, surgical, traumatic, mechanical and chemical causes of muscle spasm, and outlines the courses the process of venous thrombosis may take.

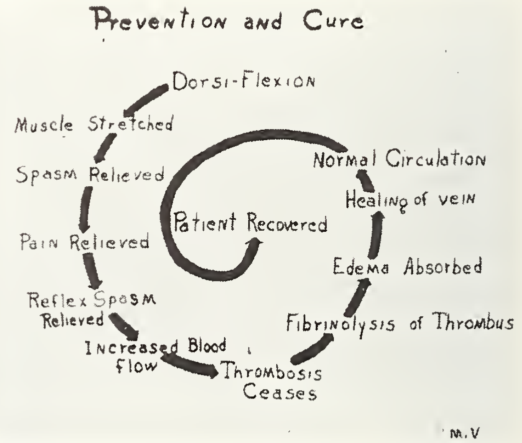
Prevention and Cure
Dorsi-Flexion
Muscle Stretched
Spasm Relieved
Normal Circulation
Healing of vein
Patient Recovered
Pain Relieved
Edema Absorbed
Reflex Spasm Relieved
Fibrinolysis of Thrombus
Increased Blood Flow
Thrombosis Ceases
M.V

FIGURE *IV*. This drawing shows how dorsi-flexion, or muscle stretching, interrupts and reverses the process of venous thrombosis.

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DISCUSSION

Dr. Richard A. Street, Jr. (Vicksburg)—The essayist is to be congratulated upon his presentation of a subject which is of considerable concern when it occurs. I cannot confirm or deny his theory, as to the cycle of events involved in an intravascular clotting. Likewise, I cannot add much to his treatment of phlebothrombosis, since we have not followed this type of treatment at the Mercy Hospital. It is our policy in a case of phlebothrombosis to put the affected extremity completely at rest, elevated, wrapped with Ace bandage, and anticoagulant therapy started. Ambulation is started as soon as it is felt that the danger of embolic involvement is controlled. We have no difficulty with controlling the bleeding factor, inasmuch as the prothrombin level is checked every morning. In the event that anticoagulant therapy should produce hemorrhage, a blood transfusion and vitamin K therapy usually controls this rather promptly. Sympathetic nerve block is usually reserved for the case of thrombophlebitis. We are not as much concerned with the possibility of embolus from the thrombophlebitis, as might be the case with the phlebothrombosis. Fortunately, with improved surgical techniques, improved antibiotic therapy and postoperative care, phlebothrombosis is not near the dreaded factor that it was some years ago. The author is to be congratulated on presenting his treatment for this condition and upon obtaining such good results.

MONITOR SCOPE SOLVES NURSE SHORTAGE THROUGH ELECTRONICS

Hospital nurses will be able to take care of more hospital rooms with the introduction of the new Sparti Faraday VISICALL Monitor, shown for the first time at the American Hospital Show at Atlantic City, Sept. 19, 1955.

A nurse can sit at her desk and receive images on a viewing screen of the interiors of the hospital rooms under her care. Camera units installed in the rooms transmit the images to the monitor scope in her office. Through a speaker, she can also carry on private conversations with patients in any of the rooms. If necessary for privacy, a patient-controlled switch cuts off the speaker and camera—thus enabling the patient and his visitor to carry on private conversation. Images of the rooms rotate at regular intervals on the monitor but can be halted and retained at will by the nurse.

Spontaneous Pneumothorax: A Case Report*

CHARLES HOGUE, M.D.
Belzoni, Miss.

This is the case of a 46-year-old white male employed by the city of Belzoni in a supervisory capacity.

This man was in a state of good health until the morning of November 13, 1954, when he developed at work a sudden onset of shortness of breath, paroxysmal coughing and aching pain in his left chest. He was in such distress that he was unable to stand erect. The past history was noncontributory as was the review of symptoms in that he gave no history of any significant symptoms such as shortness of breath, productive cough, fever, hemoptysis, etc. He did smoke and had had a so-called "cigarette cough" for a number of years.

When I saw this man, he was standing in a "stooped" manner, coughing constantly, apprehensive, and had a definite cyanotic hue. Further pertinent physical examination revealed a blood pressure of 140/80, pulse 108, temperature 100°, and respiration rate of 28 per minute. Observation of the chest revealed definite decreased respiratory motion on the left side. There were markedly diminished breath sounds noted on the left side with considerable amount of moist rales over tracheo-bronchial region.

This man was sent to the hospital where an x-ray of the chest was obtained which revealed a total collapse of the left lung with little to do mediastinal shifting. He was then taken to the emergency room; and under local anesthesia, a thoracentesis was performed using a 50 cc. syringe with an 18-gauge needle between the seventh and eighth costal margins in the posterior axillary line, and 1750 cc. of air was removed, and the patient showed marked improvement in color, respiration, and certainly was less apprehensive. Follow-up x-ray revealed about 35 per cent increase in lung shadow. The next morning another thoracentesis was performed through the same general area removing 1750 cc. of air, and follow-up x-ray revealed an increase in lung shadow to about 95 per cent of normal size. Clinically, the patient was afebrile, had little to no pain, and was annoyed now only with occasional coughing episodes. He was given penicillin prophylactically and supportive therapy, including oxygen the first night. The patient remained in the hospital for seven days and was then sent home on limited activity. He was followed periodically with x-rays, remaining free from further trouble with this condition to date.

Spontaneous pneumothorax[1] is the term used when a pneumothorax occurs suddenly in an apparently healthy individual. It is usually not related to external trauma or physical activity, as it sometimes occurs while the individual is seated or at rest. It is stated that it occurs primarily in younger individuals, particularly during the third decade of life, and appears to be more common in males[3],[6]. Generally the disease follows a rather benign course, and complete recovery is the rule; however, there are some serious complications that may develop.

ETIOLOGY

Contrary to the popular belief held for many years, tuberculosis is not the chief cause of spontaneous pneumothorax. Kjaegaard was one of the first to report the frequency of this disease noted in apparently healthy individuals, and now it is recognized that tuberculosis accounts for only a small portion[1]. It has been stated that the reason, probably, for this belief was that most of the earlier reports came from the autopsy table rather than other clinical studies.

The rupture of subpleural blebs or bullae is now considered and accepted as the commonest cause[1]. Hayaski and Kjaegaard have presented evidence to show that a check-valve mechanism may be in the form of a valve between a peripheral alveolus and a sub-pleural bleb. Air can enter this bleb but it cannot escape; consequently, pressure can be increased within the bleb until rupture will occur. Apparently, the size of these blebs that may rupture vary from quite large to small ones and may be multiple or single. The common site of these blebs is thought to be in the apical region of the lungs. Congenital cyst of the lungs may occasionally be the cause of spontaneous pneumothorax[5]. Emphysematous blebs which are a part of a generalized pulmonary emphysema may rupture and result in spontaneous pneumothorax. Ellis and Carr state that as a rule patients with spontaneous pneumothorax do not suffer from generalized emphysema[1].

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*Read before the sixty-third semi-annual meeting of the Delta Medical Society, April 13, 1955, at Cleveland, Miss.

DIAGNOSIS

The diagnosis of spontaneous pneumothorax does not present too bizarre a picture. It is possible, however, that it could be confused with a coronary thrombosis or some upper abdominal crisis such as a ruptured viscus. The classical history and symptoms are usually noted in an apparently healthy individual who suddenly develops a sharp pain in his chest which may be followed by paroxysmal non-productive coughing, shortness of breath, and cyanosis depending on the degree of pneumothorax. There will be decreased respiratory motion on the involved side and also diminished to absent breath sounds. These symptoms should be checked with the x-ray as an adjunct to diagnosis and also to observe the degree of pneumothorax for instituting the proper method of treatment.

COMPLICATIONS

There are several complications that may develop following a pneumothorax[1,2,5,6]. Probably the most frequent (10 per cent to 19 per cent, according to different authors) is tension pneumothorax. It is characterized by extreme dyspnea, cyanosis, and marked shifting of the mediastinum with downward displacement of the diaphragm. These patients are in acute respiratory and circulatory distress and need heroic treatment. These lives are endangered and a large bore needle should simply be inserted into the pleural space of the affected side until definite therapy is instituted.

Bilateral spontaneous pneumothorax is reported as occurring in about 5 per cent to 10 per cent of the cases.

Hemopneumothorax occurs less frequently than the above, but it does occur. It is reported as being usually due to a tear. The patient should be watched carefully; and if bleeding persists, it may be necessary to do an exploratory thoracotomy and ligate the bleeding vessel[1,5,7].

Recurrent and chronic pneumothorax is reported to occur in 10 per cent to 33 per cent of the cases. A chronic pneumothorax is reported to be one that has persisted for three months or more without expansion of the lung[1]. I think that it is generally considered today that these individuals should have an exploratory thoracotomy also[1,5,7].

TREATMENT

The treatment of spontaneous pneumothorax is dependent on the amount of collapse and the presence of any complication. It is considered that 25 per cent or less collapse can be treated conservatively[5]; however, any more collapse than this should probably have more aggressive treatment. Many types of treatment, including needle aspiration, intercostal drainage with a catheter, pneumonolysis, and the introduction of a chemical irritant, have been used[1]. Probably the two most common methods of treatment now are needle aspiration and catheter drainage, of which the latter seems to be becoming more popular according to the literature. The usual technique is to insert a catheter between the second and third ribs anteriorly using the same equipment commonly used with an abdominal paracentesis set[1,2,4]. The skin is infiltrated with local anesthesia, a small incision is made, and a trocar is introduced into the pleural space. A passary or foley catheter is then inserted through the trocar. (One author recommends the use of an "S" shaped metal cannula[7]). The catheter is then connected with sterile rubber tubing to an under-water drain at the bedside allowing a negative pressure to develop. The expansion of the lung is followed by x-ray. Some have reeommended that the catheter be hooked to a suction pump that is regulated to maintain a negative intra-pleural pressure[1]. This will expand the lung right away. It is recommended that these catheters or cannula be left in place for 48 to 72 hours after the lungs have been reexpanded to produce some pleural irritation in hope that it will promote pleural symphysis. These patients should pprobably all be placed on one of the antibiotics for a period of time, particularly those in whom aspiration or catheter drainage was instituted. Oxygen should certainly be used in those patients with cyanosis.

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Guillain-Barre Syndrome
(Virus Encephalomyelitis)
REPORT OF A CASE WITH PATHOLOGICAL FINDINGS

CHARLES R. LAFFERTY, M. D.
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Gulfport, Mississippi

In recent months there has been renewed interest in Guillain-Barré Syndrome, as evidenced by more frequent reporting in the American and European medical literature. This may be due to an increase in the number of cases seen. The clinical manifestations of this syndrome have been adequately described in the literature and are known by most physicians. The post-mortem findings likewise have been described, but the number of cases has been few and the findings variable. The anatomical findings therefore are not so well known as the clinical. Much more is to be learned by a thorough examination of the nervous system of patients dying with this syndrome.

A singular aspect of the case submitted is the age of the patient; the onset of his illness was at 64. This disease is more prevalent in infancy, childhood and young adult life and very unusual after the age of 60.

REPORT OF CASE

The patient, a 64-year-old colored male, was admitted to a Veterans Administration Hospital on February 5, 1955. His chief complaint was extreme weakness. The history obtained from his wife was that until two weeks before admission his health had been fairly good. He then developed "a cold" followed by cough and fever. His family physician visited him and gave several injections of penicillin. He improved somewhat and even attempted to return to his work at an air force base on January 31, 1955, but found that he was too weak to carry on his assigned work. He returned home and by February 3, 1955, he had become so weak that he was unable to walk or get out of bed; his wife had to feed him with a spoon. The patient did not complain of pain. He was seen again by his physician who gave him "bufferin and cough syrup," but there was progression of symptoms. When questioned carefully the patient said that he had noted difficulty in swallowing and had occasionally seen double.

The patient had been hospitalized in 1937 and 1938 for treatment of hypertension and a hernioplasty had been done. Frequent headaches were reported but no other significant symptoms. There was no history suggesting organic brain damage or mental disorder.

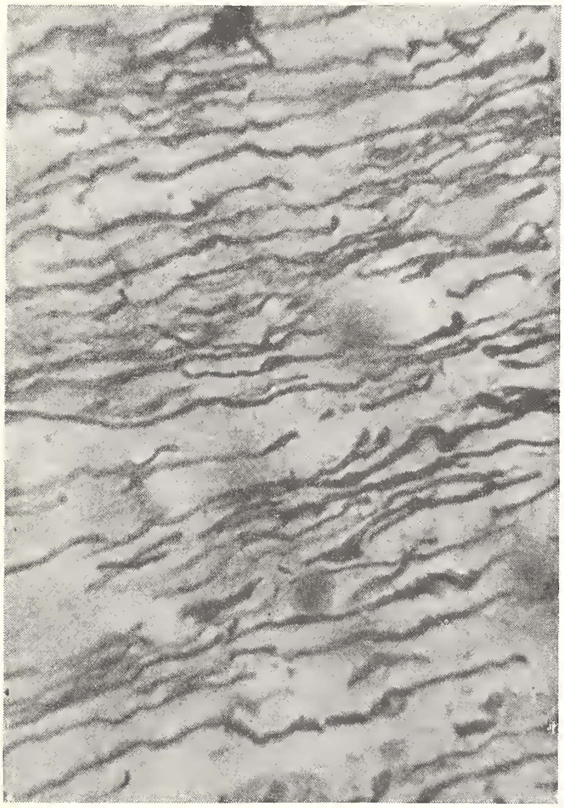
On admission to the hospital the physical examination revealed a well-developed, well-nourished colored male, lying quietly in bed and perspiring even though the day was cool. There was general facial weakness and definite dysarthria. He spoke with considerable difficulty, and although he was able to swallow he had difficulty clearing his throat. Temperature 98.6, pulse 70, blood pressure 180/90. The pupils were round and equal and reacted to light and accommodation. There was a suggestion of ptosis bilaterally and of a left lateral strabismus. He protruded the tongue but was unable to blow out the cheeks. The pharynx was normal. Respiration was not labored and respiratory movements were normal. The lungs were clear to auscultation and percussion; the heart not enlarged to percussion. A soft systolic murmur was heard over the apex and occasional premature beats were noted. The peripheral vessels were moderately sclerosed. The abdomen was normal. There was a left inguinal herioplasty scar. Outstanding findings were generalized muscular flaccidity and extreme, generalized motor weakness. The patient could flex the fingers, wrists and toes but he was unable to produce any motion in the shoulders, hips and knees. The brachioradialis reflexes could be elicited but other deep reflexes were absent. On plantar stimulation there was slight dorsiflexion of the great toe. Hoffman reflex was negative. Sensation to touch with pin prick was normal. Abdominal reflexes were absent. No adenopathy was found. Spinal tap was performed on February 7, revealing clear spinal fluid, normal pressure of 190 mms. of water.

LABORATORY AND X-RAY FINDINGS: 2-5-55: WBC 11,500 with 84 per cent neutrophils, 14 per cent lymphocytes, 2 per cent eosinophils. 2-7-55: RBC 4,300,000, WBC 10,600, hematocrit 40 per cent. Urinalysis: Sp. gr. 1.032, albumin 4x, sugar negative, occasional WBC. VDRL negative. BUN 28.1, serum chloride 95 meq. Spinal fluid: Clear, cell count 1, total protein 100, collodial gold 1122221100, chlorides 669, sugar 98. X-ray of heart and lungs was normal. EKG was abnormal and compatible with left ventricular hypertrophy and myocardial ischemia.

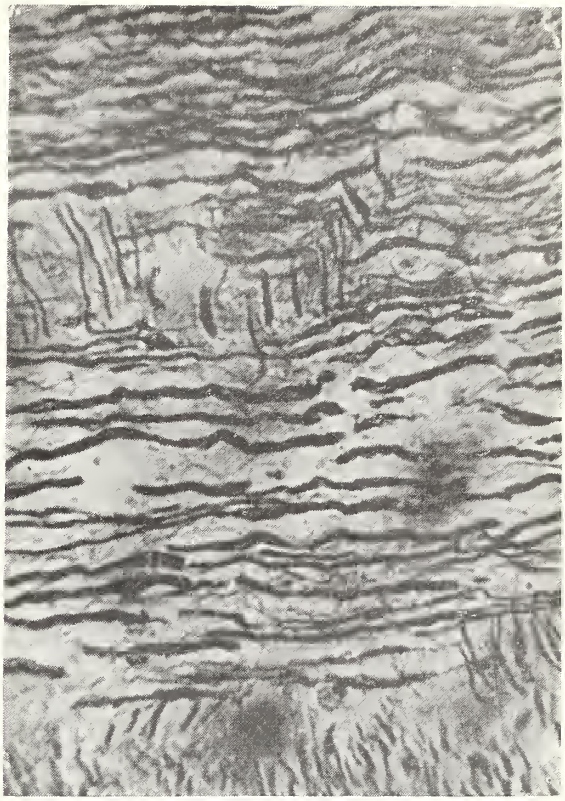
At the hospital differential diagnosis included myasthenia gravis, Guillain-Barré Syndrome, or an obscure neurological disease. The patient was treated symptomatically. His weakness seemed to increase on the first and second days after admission and by morning of the third day he was considered to be seriously ill. In view of the possibility of myasthenia gravis, he was given a diagnostic test with prostigmin, 1 cc. of 1:2000 solution mixed with 1/150 gr. of atropine. Results after 15 to 30 minutes were somewhat equivocal, but the patient indicated that he felt a little improved and appeared to move his arms and to flex his knees slightly. Symptoms were progressive. It was necessary to aspirate his throat frequently to remove accumulated mucus. At 1:40 A.M. February 8, 1955, the nurse found him with imperceptible pulse and no evidence of respiration. Coramine and caffeine were given to no avail. The patient was pronounced dead at 1:50 A.M.

PATHOLOGICAL FINDINGS

The gross and microscopic examination of various organs of the pleural and abdominal cavities were essentially negative except for bilateral pulmonary edema. Gross examination of the central nervous system showed the cerebral hemispheres, pons, medulla and cerebellum to be negative, no areas of softening or indentation, no atrophy of the cortex, nor degenerative areas in the white matter. The lateral ventricles were not dilated but retained their usual outline. The basal ganglia, hypothalamus, pons and cerebellum showed no degenerative areas or areas of scarring or hemorrhage. The cord on the cut sections revealed no areas of discoloration or softening. The cerebral vessels showed a rather advanced stage of arteriosclerosis with numerous atheromatous plaques in the walls of the arteries. Blocks of tissue were removed from various areas in the cerebral cortex, basal ganglia, hypothalamus, pons, medulla and spinal cord and stained with hematoxylineosin, Weil's myelin stains, Davenport's silver method for nerve fibers and Nissl chromatin stains. Examination of the slides stained with hematoxylin-eosin showed no areas of inflammation in any of the sections from the brain or the cord. Sections stained for myelin showed no evidence of demyelinization of the nerve fibers. Examination of the ganglion cells in the cord and the various sections of the brain showed an occasional cell undergoing degenerative changes with signs of chromatolysis and chromaphobia in these cells. The greatest number of degenerative cells was noted in the medulla where the ganglion cells were hyperchromatic with their nuclei displaced to the periphery. The ganglion cells in the cortex showed no changes. The most striking pathology of any of the sections was noted in the slides stained with Davenport's silver method for nerve axones; with this stain definite swelling, dissociation, and twisting of the axones of the nerve fibers in the cord and in the medulla was evident.



1. Davenport's stain of nerve axones in the spinal cord, showing swelling, twisting and dislocation of the nerve axones.



2. Davenport's stain of nerve axones in the medulla, showing swelling of the nerve axones.

3. Nissl stain of the cells in the anterior horn of the spinal cord showing occasional chromatolysis of the ganglion cell.

4. Nissl stain of the ganglion cells in the medulla showing hyperchromatic cell with some atrophy.

COMMENT

From a study of this case it seems that the principal pathological change was in the nerve axones of the medulla and spinal cord which was evidenced by swelling, twisting, and fragmentation of the nerve fibers. These findings are similar to those reported by Scheinker. The ganglion cells of the anterior and posterior horns in this case showed an occasional degenerative change. The cells of the medulla showed rather extensive degenerative process and this area revealed the most marked changes of the central nervous system. There was no evidence of demyelinization of any of the sections studied and no inflammatory cells were found in the stroma or around any of the blood vessels. The cause of this degenerative process is unknown. Several authors believe that it is an allergic phenomenon and that it is a manifestation of a hypersensitivity.

SUMMARY

A better understanding of the pathological process in this syndrome may help the clinician in treating this disease. Much of the pathology in the Guillain-Barré Syndrome is to be learned and a thorough post-mortem examination of the central nervous system is the primary requisite. The pathologist making such examination should make a special study of the axones of the cord and brain, or the principal pathological process may not be found.

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GULF COAST CLINICAL SOCIETY PROGRAM

Thursday, October 27, 1955

10:00 a.m.—"Mechanism of Action of the Antibiotic Drugs"—Dr. John C. Krantz, Jr., Prof. of Pharmacology, University of Maryland Medical School, Baltimore, Md.

11:10 a.m.—"Gyne-chiatry"—Dr. W. K. Keller, Prof. of Psychiatry, University of Louisville School of Medicine, Louisville, Ky.

12:30 p.m.—Luncheon and Round Table Discussion: "Etiology and Treatment of Bronchogenic Carcinoma"—Drs. Ward, Levine, and Krantz.

2:30 p.m.—"The Patient with Fever of Unknown Origin"—Dr. Max Michael, Jr., Prof. of Medicine, New York State University, New York, N. Y.

3:20 p.m.—"Angiocardiography"—Dr. J. E. Miller, Radiologist to the Baylor University Hospital, Dallas, Texas.

4:20 p.m.—"Tumors Primary in the Neck"—Dr. Grant E. Ward, Director, Tumor Clinic, Johns Hopkins Hospital, Baltimore, Md.

6:30-7:30—Cocktail party and banquet.

Friday, October 28, 1955

9:30 a.m.—"Some Mechanisms Responsible for Recurrent Bronchopulmonary Infection"—Dr. Edwin R. Levine, American College of Chest Physicians, Chicago, Ill.

10:20 a.m.—"New Light on the Etiology of Gastric and Duodenal Ulcer"—Dr. Lester R. Dragstedt, Prof. of Surgery, University of Chicago, Chicago, Ill.

11:20 a.m.—"Clinico-Pathological Conference"—Drs. Michael, Dragstedt, and Miller, and Dr. W. A. D. Anderson, Prof. of Pathology, University of Miami School of Medicine, Coral Gables, Fla.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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EDITORIALS

GP FEATURES MEDICAL SCHOOL FACULTY

At the seventh annual assembly of the Mississippi Academy of General Practice, held at the Heidelberg Hotel in Jackson on September 21 and 22, the scientific papers were presented by members of the faculty of our four-year medical school. This symposium was excellent. We congratulate the officers of the Academy and the program committee. The medical atmosphere of Jackson has improved greatly. The entire state will soon feel the invigorating influence of our medical center.

Dr. W. M. Dabney presided as president of the GP assembly, with Dr. A. V. Beacham as secretary.

The newly elected officers of the assembly are: Dr. William E. Lotterhos of Jackson, president; Dr. A. V. Beacham of Magnolia, president-elect; and Dr. Robert M. Seawright of Bolton, secretary-treasurer.

THEY GAVE IT BIRTH

The dedication of the four-year medical school on October 24 makes important medical history for Mississippi. Many will be due credit for this momentous achievement, although to list them all would be too lengthy an undertaking. However, a brief review of the years of effort which made possible this day's crowning admits such names on the list as governors Fielding Wright and Hugh White; legislators Hayden Campbell, Marvin Bullard, Elmer McCoy, Sam Johnson, and the late Dr. Henry, who had the vision and faith to give a legal birthright to our medical school.

NEW HEAITH FACILITY

The time is propitious for building a much-needed housing facility for the Mississippi State Board of Health on the medical center site.

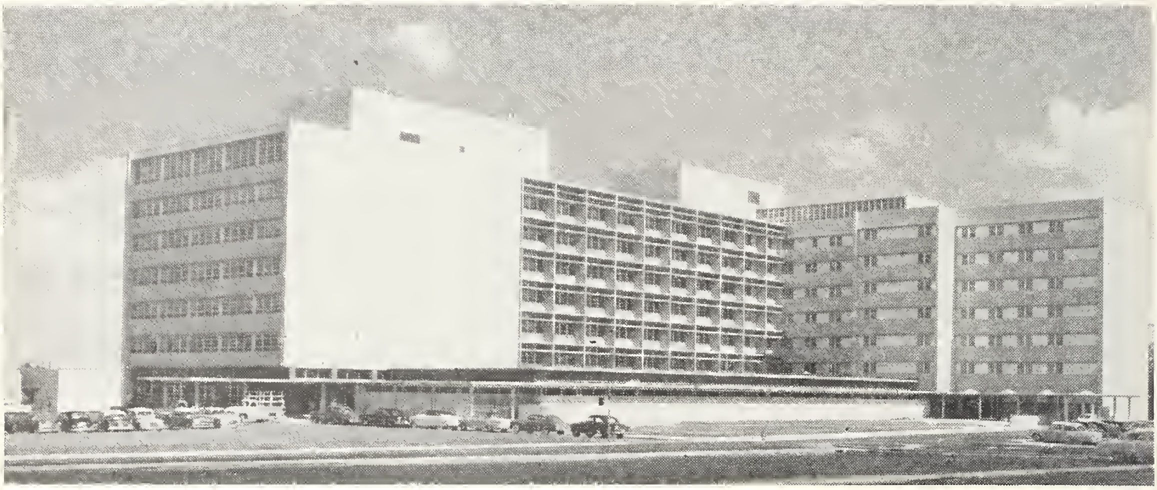
The strength of our state is mostly in the health of our people.

SALUTE TO DR. COHN

We acknowledge the little brochure from Dr. Isidore Cohn of New Orleans including the tribute paid him on his seventieth birthday and on his forty-eight years of service to Touro Infirmary. The tribute was made by the inimitable surgical master, Dr. Rudolph Matas, whose matchless and unfailing eloquence makes a gem of this little memento.

Dr. Cohn was a student of Dr. Matas, then his assistant, and still later his successor as chief of the surgical staff of Touro. After serving in this last capacity for twenty years or longer,, he now retires. We have many men in Mississippi who sat under his masterful teaching at Tulane. He was brilliant, practical, and thorough. He has appeared on our state medical programs many times. We offer our cordial congratulations and appreciation for his services as teaching and contributor to the medical literature.

UNIVERSITY MEDICAL CENTER DEDICATION CEREMONY



The new University Medical Center in Jackson will be formally "introduced" to the state in an eagerly-awaited dedication ceremony on Monday, October 24.

Climaxing a brief program which is to begin at 3:00 p.m., spectators from all over the state will be invited to tour the center in a gigantic open house aimed at letting every Mississippian see, with his own eyes, his magnificent, new four-year school of medicine and teaching hospital.

The 30-minute dedication program is to be televised and will present Gov. Hugh White as its only speaker after Chancellor J. D. Williams welcomes the audience.

When the school of medicine doors swing wide for the surge of visitors at open house, there'll be many a guest whose thoughts turn back to the long struggle for a four-year school of medicine in Mississippi.

Some of them may even recall the two crowded classrooms where 15 medical students met in 1903, the first class in the University of Mississippi two-year department of medicine.

In comparison, they will rejoice to see 131 future Mississippi doctors at work in a seven-story, three-wing building which equals any in the country.

Guests who drive to Jackson for the dedication and tour will have no trouble finding the Center.

The handsome, functional edifice tops a slight rise in a 44-acre tract of land at the intersection of North State Street and Highway 51.

It is reached by three separate driveways: One just a few hundred feet north of the intersection; one running beside the old Highway Patrol building and one turning in from Highway 51 to the east.

The building may be visualized as an immense "T" with the two wings of the hospital stretching east and west to form the crossbar and the school of medicine reaching to the north to form the stem.

A walking tour of the entire Center might exhaust both the guest and his shoe leather since he'd have to cover a good 10 acres of floor space. But a word tour can prepare the rocking chair sightseer for what he may view, in capsule version, on October 24.

As Dr. David Pankratz, dean and director of the Center, puts it, "We've got a great big basement."

In that great big basement are the spotless, stainless-steel equipped kitchens where tempting meals are dished up for patients and for the two cafeterias. All food except bread is prepared in these kitchens which can turn out up to 1500 meals three times a day.

In the basement, too, are the pharmacy where some of the hospital needs are "concocted" on the spot. Medical records is nearby, along with the housekeeping and dietetic offices, the book store, supply store, post office, student lockers, medical illustration, radiotherapy room and the morgue.

Ascending to the first floor, the visitor steps into the beautiful panelled hospital lobby. Back farther are the two pleasant cafeterias, private dining rooms for meetings, the administrative and business offices.

The outpatient clinic with its annual capacity of 50,000 visits, is on this floor as are x-ray, physical therapy, the heart-lung station and the emergency department.

Cherry panelling gleams in the school of medicine administrative corridor where hang portraits of former deans of the school of medicine.

In the student lounge across the hall, doctors-to-be rest between classes, swap gossip or consult the bulletin board for notices.

All through the building, colors are gay, bright and modern, matched by gleaming asphalt tile floors and sturdy, contemporary furniture.

Each hospital floor has a cheery, comfortable waiting room for family and friends of the sick. Presently, there are approximately 140 patients in the hospital daily. Average length of stay is 10½ days. During the weeks since the hospital opened, patients have come from 44 counties in the state. Additional beds will be opened up within 60 days.

The hospital rooms are designed for one to four patients. Walls are painted in fresh pastel shades. The furniture is contemporary in style and the blond wood beds may be lowered to normal bed height for night rest. Oxygen and suction are available in each hospital room.

Emphasis is on teaching so that equipment is designed for a speedy, efficient learning process with a minimum interruption of hospital routine.

Adjoining the nursing station are student observation posts where charts can be studied without disturbing this vital nerve center in patient care. At the nurses station a direct wire "telephone" leads to the medical records department for on-the-spot dictation.

On the second floor, both 30-bed hospital wings are devoted to surgical nursing. Here are the 10 operating rooms and their excellent 10-bed recovery room. The blood bank is across the hall as is the anesthesiology department. In the school of medicine, the department of pathology is on this flood for convenience in examining tissues.

Rowland Medical Library is on the second floor, too. Its huge, brightly lighted reading room is decorated in striking colors and the books are housed in five half-story stacks descending into the basement.

The two wings for surgical nursing are repeated on the third floor which adds central supply and central hospital laboratory in the east-west section.

Lecture rooms, research and student laboratories for biochemistry and surgery are found in the medical school wing, reached through double doors leading from the hospital.

On all six of the teaching floors, walls are finished for economy and durability with glazed tile head high, topped by tinted cement blocks.

Laboratories vary in size, up to 100-student capacity and lecture halls seat up to 150 persons.

On the fourth floor, 42 beds and 56 bassinettes occupy the two hospital wings for obstetrics and gynecological nursing. The teaching area for this department is on four as is pharmacology.

Climbing to the fifth floor, the visitor will find both hospital wings given over to medical nursing. The medical school departments of bacteriology and parasitology, infectious disease and hematology are also on five.

Floor six has two more medical nursing wings and school space for the departments of physiology and bio-physics, the department of medicine offices and lecture rooms.

'Way up on seven, you'll see pediatric nursing in the west wing while the east wing is intended for private patients. In the school of medicine are located the departments of anatomy, histology, pediatrics and psychiatry.

From the windows of the restful reading room on seven can be seen the park-like campuses of three new city schools. A glimpse of the Millsaps campus is also within eye-range.

The visitor often wants to pause there to catch his breath and to enjoy this beautiful panorama which provides a perfect setting for the Medical Center, surrounding it with evidences of this state's thoughtful interest in educating its young people.

Then, with a grateful smile for the operator, the visitor steps into one of four banks of elevators and swoops to the ground floor.

He's seen University Medical Center as it appears today—bright, proud and new as it takes up its high task of teaching Mississippi's future doctors in the state's own university for the first time.

ACS SECTIONAL MEETINGS FOR 1956

The medical profession at large is invited to attend any of six Sectional Meetings of the American College of Surgeons, to be held in cities throughout the United States and Canada during 1956. Meeting cities are Jacksonville, Florida, January 16-18; Philadelphia, Pennsylvania, February 13-16; Milwaukee, Wisconsin, February 27-29; Colorado Springs, Colorado, March 5-7; Little Rock, Arkansas, March 12-13; Edmonton, Alberta, April 23-25.

These meetings, like the five-day annual Clinical Congress, are designed for the purpose of disseminating information about new methods and therapies.

DR. ROSSER HONORED

Southern Methodist University, Dallas, Texas, at its summer commencement exercises on August 26, 1955, conferred the honorary degree of Doctor of Science on Dr. Curtice Rosser, Dallas. In the presentation of the degree Dr. Rosser was hailed "as a surgeon, a scientist, a teacher, who exemplifies the highest ideals of his profession." He is a past-president of the Southern Medical Association.

TO PRESIDE AT SMA MEETING

DR. SANDERS

Dr. R. L. Sanders of Memphis will preside at the annual session of the Southern Medical Association which meets in Houston, Texas,Nov. 14-17.

Dr. Robert Lee Sanders was born near Anderson, South Carolina, on April 7, 1882. He was reared on a farm and obtained his academic education in country public schools, the Patrick Military Academy in Anderson, and at Peabody College, Nashville, Tennessee. In 1906 he was graduated from the University Medical College (now the University of Tennessee).

After eight years of general practice in Anderson, Dr. Sanders went to the Mayo Clinic in 1914, where he spent the next four years as a Fellow in Surgery. During the first World War, he served as major. In 1920, he entered the practice of surgery in Memphis, Tennessee, where he has since remained. With his brother, Dr. L. C. Sanders, he organized the Sanders Clinic in 1932.

Dr. Sanders is a deacon of the First Baptist Church, Memphis. He is married and has one son, Robert Lee Sanders, Jr.

His life work has been devoted to general surgery, his particular interest being surgery of the gastrointestinal tract. He has traveled extensively abroad, attending many clinics in Europe and elsewhere. For three decades he has appeared on medical programs all over the United States and Canada and in several foreign countries.

Dr. Sanders is senior surgeon of the Baptist Memorial Hospital, Memphis, and has been both chief of staff and president of the staff of that institution. He is also Professor of Surgery (inactive) of the University of Tennessee College of Medicine.

Dr. Sanders' positions in the Southern Medical Association have been many, as have they been in his various other professional affiliations.

ACS KINESCOPES

There is now available through the American Cancer Society, Mississippi Division, professional kinescopes for use by doctors' groups throughout the state. These kinescopes are color reproductions of live television shows which were produced by the American Cancer Society and the Columbia Broadcasting System.

In these programs, extensive use was made of live clinical material in order to illustrate the signs and symptoms of cancer as it presents itself in the office of the practicing physician. The discussions and demonstrations include symptomatology, physical signs, diagnostic procedures, laboratory findings and treatment methods. Most of the programs center around panel discussions interspersed with previously recorded color films of operative procedures, laboratory techniques, chemotherapy, case histories, x-ray findings, haematologic smears or histologic sections, gross specimens, clinical charts, statistical data—often annotated manikin demonstrations and presentation of live patients.

These "physicians conferences on cancer" are conducted by outstanding clinicians in the cancer field.

Films available include "The Psychological Aspects of Cancer," "Cancer Detection," "Lymphomas and Leukemias," "Cancer of the Urinary Bladder," "Cancer of the Oral Cavity," "Cancer of the Prostate," "Tumors of Childhood," "Moles and Melanomas," "Chemotherapy: A Research Frontier," "Cancer of the Thyroid," "The Differential Diagnosis of Uterine Bleeding," "Cancer of the Colon and Rectum," "Tumors of Bone," and "Head and Neck Cancer." Kinescope No. 16, "Cancer Detection," is available from the Mississippi Division now and others will be available upon the request of medical groups.

"Cancer Detection" presents a practical office cancer detection examination. This systemized half-hour detection examination is based on an experience of more than 100,000 examinations, the results of which are reviewed briefly. Attention is devoted to methods of extending the range of early cancer accessible to office examination and to the role of the practitioner in the field of cancer control.

Promotional booklets (summaries) and posters are also available for use with the kinescopes. The summaries should be of considerable value to the doctors long after they have viewed the kinescope films. The descriptive text in the summaries will recall the visual sequences of a film. Often the real usefulness of films is diminished by lack of information about their content—the explanatory charts, anatomical diagrams and references for further reading on each cancer site subject, make a real contribution to the doctor's desire to increase his knowledge of the new developments in the diagnosis and treatment of cancer.

The American Academy of General Practice will give informal study credit to its members attending the film showings of the "physicians' conferences on cancer." The Academy requires one hundred hours of informal study every three years, and fifty hours of formal. These programs will assist Academy members in acquiring hours of credit toward their informal study requirements.

The objective of these kinescopes is to stimulate among all doctors a recognition of the importance of their role in determining the outcome of cancer, by demonstrating what can be accomplished by ways of increased cure rates through early detection and diagnosis; to illustrate how the practicing physician can effectively assume this role by increasing his knowledge of early cancer, by defining the indications for diagnostic procedures; to demonstrate methods or techniques of treatment; and to promulgate knowledge of research advances.

AWARDED GRANT

Dr. James D. Hardy has been awarded an Army grant of $35,985.00 for the further investigation of various problems in the field of trauma. The studies which will be pursued have to do with thermal burns, surgical endocrinology, body fluid metabolism, prostheses for arterial replacement, surgical nutrition, and the anesthesia tolerance of depleted subjects.

Dr. Hardy is Professor and Chairman of the Department of Surgery and Surgeon-in-Chief to the Hospital of the University of Mississippi, Jackson.

MISSISSIPPI HOSPITAL ASSOCIATION

DR. SIMMONS

"You and Your Hospital's Future" has been adopted for the theme of the 24th Annual Convention of the Mississippi Hospital Association. The annual meeting is to be held at the Buena Vista, Biloxi, on October 6 and 7.

Omar Simmons, M.D., Association President and administrator of the Newton Hospital, Newton, has predicted that over 400 hospital personnel will attend in order to study the many challenges that are present in the field of hospital management.

Dr. Omar Simmons is a native of Louin, Mississippi. He attended the University of Mississippi and is a graduate of the School of Medicine, University of Tennessee. Following the granting of the degree of Doctor of Medicine, Doctor Simmons interned at the Memphis General Hospital which is now known as the John Gaston Hospital. Currently, he is administrator of the Newton Hospital, a county-owned institution. Prior to this, Doctor Simmons owned and operated the original Newton Hospital. He practices in the field of general medicine and general surgery.

Doctor Simmons is currently President of the Mississippi Hospital Association and Treasurer of the Mississippi State Medical Association. He is concurrently serving on the Board of Directors for the Southeastern Hospital Conference as well as on the Board of Directors, Mississippi Division, American Cancer Society. He is the President-elect of the East Mississippi Medical Society and served last year as the Vice-president from Mississippi for the Mid-South Postgraduate Medical Assembly. Doctor Simmons is active in civic and church work in Newton, serving as an elder for the local Presbyterian Church and as a member of the Board of Directors for the local Chamber of Commerce.

During the first afternoon session which will be presided over by Grady Wells, administrator of the Field Memorial Hospital, Centreville, discussions will be heard on narcotics, nursing education, and women's auxiliaries. Gillmor Failor, federal narcotic agent with the Treasury Department in New Orleans, will address the group on "Narcotics—Do You Know the Score?"

Following Mr. Failor, Dr. E. R. Jobe, executive secretary of the Board of Trustees, Institutions of Higher Learning, Jackson, will elaborate on "Nursing Education—Where Do We Go from Here?"

The afternoon session will close with an address on "Hospital Auxiliaries—What Are You Doing About Them?" by Miss Elizabeth M. Sanborn, Secretary of the Committee on Hospital Auxiliaries, American Hospital Association, Chicago.

Robert A. Ivy, Administrator, Doctor Hospital and Clinic, Columbus, will preside over both sessions of the House of Delegates where business affairs of the association will be transacted.

At the final business session on October 7, S. Earl Grimes, Jr., Administrator, King's Daughters Hospital, Brookhaven, will be installed as the new association president.

NORTHEAST MEDICAL MEETS

The Northeast Mississippi Medical Society held fall quarterly meeting in Aberdeen, September 13. Dr. Harry Cosby, Jr., Iuka, presided, with Dr. H. H. McClanahan of Columbus, secretary.

Scientific papers presented included: "Asthma in Childhood," by Dr. W. F. Creswell, Jr., of Aberdeen; "Hemolytic Anemia Associated with Copper Sulphate Poisoning," by Dr. R. H. Roberts of Houston. Dr. J. R. Snavely, Professor of Medicine, University of Mississippi Medical School, Jackson, the guest essayist, gave a most interesting and informative discourse on the function of our new four-year medical school. A well-informed man in medicine, balanced in estimating medical values, he is expert in public relations. Evidently a man of medical vision, determination and purpose, he possesses enough wit and humor to assure successful sailing in his department of the medical school.

State President Lamar Bailey of Kosciusko brought greetings. He is working hard and is very sincere in his desire to serve.

At the banquet Dr. H. C. Ricks of Jackson, state president-elect, urged every doctor to pay his dues and participate in the local society. He is greatly interested in seeing the hospitals over the state have an adequate supply of registered nurses to do bedside nursing. If under Dr. Ricks' leadership more nursing schools are reopened to supply the present near-acute need, he will have served Mississippi medicine well. Of the fifty-two hospitals in Mississippi which have operated training schools, only eleven are now operating and two of these have announced discontinuance.

As the right arm of the medical profession, the services of the nurse are indispensable in administering adequate medical care. With our present system of hospitals, we can easily have an excellent system of training nurses. We can successfully utilize our junior colleges in an academic affiliation so that the program will enlist superior young women whose education can be obtained almost as easily as public education. Dr. Ricks will have plenty of backing in his plan to give our state more registered nurses who have had three full years of training.

HEART ASSOCIATION

American Heart Association Annual Meeting and Scientific Sessions, New Orleans, October 22-28.

Heart Forums: October 11, Bay St. Louis; October 25, Eupora; November 7, Cleveland; November 8, Tupelo.

Heart Exhibits: Leake County Fair, September 7-10; Tippah County Fair, September 13-17; Oktibbeha County Fair, October 3-8; Miss. State Fair, October 10-15; Amite County Fair, October 24-31; Mississippi Public Health Association, December 7-9.

State Campaign Meeting: December 1, Robert E. Lee Hotel, Jackson.

Receipts for the Mississippi 1955 campaign totalled $50,000, which means more funds can be channelled into our research and education programs. With $10,250 allocated to research in Mississippi, and $6,250 going to support the research program of the American Heart Association, Mississippians have given $16,500 to heart research this year. Local grants include $2,000 to support a research project under the direction of Dr. Arthur Guyton in the Department of Physiology and Biophysics at the University, and $6,000 to purchase needed equipment in the Heart-Lung Section at the new Medical School. This year's allocation triples the 1954 grants to research, and brings to $27,196.38, the total that Mississippi Heart Association has given to heart research since its organization December 6, 1951. This represents more than 21 per cent of all funds received in four years of operation.

On September 15, Paul J. Pryor, assistant administrator of the Arkansas Baptist Hospital, Little Rock, assumes his new duties as administrator of the Mississippi Baptist Hospital in Jackson. W. Wilson Turner, current administrator, is resigning to accept the position of associate administrator of the Memorial Hospital, Houston, Texas. Mr. Pryor, a native of Texas, has been assistant administrator of the Arkansas Baptist Hospital for the past five years. He is married and is the father of three children.

ABSTRACTS FROM PEDIATRIC LITERATURE

Poisoning Due to Petroleum Products. P. M. Thompson. Arch. Pediat. 72:35-50 (Feb.) 1955 (New York).

Of 62 cases of poisoning caused by petroleum products in children, 55 were due to kerosene, six to gasoline, and one to lighter fluid. In the kerosene-poisoning group, the ages of the patients ranged from nine to 45 months. Clinical histories of the 55 patients revealed coughing in 21; 25 were depressed or stuporous, and 25 vomited. Sixteen showed definite pulmonary changes with rales and rhonchi. Pneumonia developed in 37 patients (69%) as detected by roentgenograms or autopsies. The incidence of pneumonia in those who vomited and/or had gastric lavage (25 of 32 patients) was 19 per cent greater than in those who neither vomited nor had gastric lavage (12 of 23 patients). Two of the 55 patients who ingested kerosene died. At autopsy both had a small amount of serous or serosanguineous pleural effusion. The lungs were heavy, moist, and red. Microscopically a hemorrhagic edema, foci of pneumonic consolidation with a predominance of mononuclear leukocytes, the formation of hyaline membranes lining the alveoli, and necrosis and desquamation of the bronchial mucosa were seen. The main diagnosis was one of a peribronchial and peribronchiolar type of pneumonia typical of aspiration, characterized by mononuclear leukocytic infiltration and hyaline membrane formation. In the six children with gasoline poisoning, the ages ranged from 12 to 41 months. Two had coughs, four were depressed, and two vomited. The number of patients was too small for correlation of pneumonia with vomiting and gastric lavage.

COMMENT

By the time this article goes to press, the time for using petroleum products will be increasing since many people still use kerosene to start fires and for other purposes around the household. So I think it is a very timely article and one that is necessary to make us think on the problem of diagnosis and treatment of such cases.

Harvey F. Garrison, M. D.

ANNOUNCEMENTS

Charles L. Neill, M.D., announces the association of Walter R. Neill, M. D., in neurological surgery. 746 Manship Street, Jackson, Miss.

Frank G. Gruich, M.D., announces the opening of his office for the practice of obstetrics and gynecology, Barq Building, Biloxi, Mississippi.

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Woman's Auxiliary

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FROM OUR PRESIDENT

Fall Schedule

September 8—Laurel and Hattiesburg Units of the South Mississippi Medical at Laurel.

September 13—Northeast Medical at Aberdeen.

October 4—Central Medical at Jackson.

October 9—Delta Medical at Belzoni.

October 18—Issaquena-Sharkey-Warren Counties at Vicksburg.

November 9—Clarksdale and Six Counties at Clarksdale.

Nurse Recruitment and Student Nurse Scholarship Fund:

On November 1, 2, and 3, Mrs. Rogers and I go to Chicago to a conference of Presidents and Presidents-Elect at the Drake Hotel. Each state president appears on a panel for a three-minute talk. My subject is *Nurse Recruitment.* If you have done anything interesting about this project please write me about it. Let us concentrate our efforts this year and try to do something constructive along this line. On August 25, at the Executive Board meeting a forward step was taken. It was brought to the attention of the Board that there was $200.00 in the State Treasury which had been set aside in 1952 to be used as a loan to a student nurse. The Board voted to lend this $200.00 together with an additional $100.00 to Martha Ann Cupit of Meadville. She stood all of her examinations and met all of the requirements and is now in training at the Baptist Hospital in Jackson. If your auxiliary wants to help with scholarship fund send your money to Mrs. J. D. Simmons, treasurer, Cleveland, Miss., and tell her it is for the Nurses' Scholarship Loan Fund. This will be a revolving fund and we can always have a nurse in training if we are interested.

CALL TO CONVENTION

The thirty-first annual meeting of the Woman's Auxiliary to the Southern Medical Association will be held November 14-17, 1955, in Houston, Texas, with the Rice Hotel as headquarters.

Monday, November 14

10:30 a.m.—Opening General Assembly of the Southern Medical Association (Public Session), Emerald Room, Shamrock-Hilton Hotel. All ladies attending the Southern Medical Association meeting are cordially invited to attend.

12:00 noon—Luncheon and Pre-Convention Meeting of Executive Board, Hunt Room, Rice Hotel.

3:00 p.m.—Style Show and Seated Tea, Sky Terrace, Sakowitz.

Tuesday, November 15

9:00 a.m.—General Session of the Thirty-First Annual Convention of the Woman's Auxiliary to the Southern Medical Association, Jade Room, Rice Hotel.

12:00 noon—Doctor's Day Luncheon, Crystal Ballroom, Rice Hotel.

2:30 p.m.—Tour of the Texas Medical Center. Buses leave from the Rice Hotel.

Wednesday, November 16

10:00 a.m.—Post-Convention Executive Board meeting.

12:00 noon—Past Presidents' Luncheon.

7:00 p.m.—Southern Medical Association Dinner, Program and Dance.

POST-CONVENTION TOUR

The Southern Medical Association announces a post-convention tour to Mexico following its 1955 Annual Meeting in Houston on November 14-17.

Requiring only 10 days, the tour will leave Houston the afternoon of November 17 via Pan American Airways on a non-stop flight to Mexico City.

Any physician expecting to attend the Southern Medical Association meeting in Houston, who is interested in visiting Mexico, may secure an official tour folder by writing directly to the headquarters office of the association in the Empire Building, Birmingham, or to International Travel Service, Inc., at the Palmer House, Chicago 3.

The Rosen Technique of Stapes Mobilization in Otosclerotic Deafness*

HAROLD G. TABB, M.D.‡
New Orleans, La.

The fenestration operation for otosclerosis is generally and correctly described as the greatest otologic contribution to medical science which has been made in this generation. The concept of surgery on the oval window, which is the site of predilection for otosclerotic changes, dates back to the eighteenth century. The first surgical procedure was a simple opening into the mastoid process. In the course of the development of the modern operation, the drum and the larger ossicles were removed, with, in some instances, improvement of hearing. In 1892 Blake[1] advanced the theory that such improvement as was being obtained by this operation was not the result of removal of these presumably obstructing tissues and bones but was due, instead, to the mobilization of the stapes which was part of the technique.

It was not until 60 years later that clinical use was made of this observation. In 1952, Samuel Rosen[2] of New York, while palpating the stapes to determine whether a 43-year-old man was a suitable candidate for the fenestration operation, observed that the partially fixed structure was moving under his hand. Suddenly, while he was moving it, the patient, who was bilaterally deaf and deafer in the ear being investigated, said that he could hear "everything now—things I haven't heard for so many years." At the end of 25 months the improvement was still present.

This patient was one of a number upon whom Rosen was employing a new procedure, lifting up the ear drum and manipulating the stapes, to determine whether the fenestration operation was indicated. The results in this case led him to suggest that manipulation of the partially fixed stapes be employed deliberately to improve impaired hearing. In 1953 he presented before the Medical Society of the State of New York[3] this patient and four others with otosclerosis upon whom he had employed this operation and all of whom had sustained so much improvement that their hearing was now at the serviceable level.

Since then Rosen has reported a number of additional cases treated by this procedure[3,4]. About each of them, as he puts it, two questions can be answered in the affirmative. The first question is, can the operation restore useful hearing? The reply is that it can. The second question is, will the restored hearing be maintained? The reply is that within the limits of the period of observation, which is still under three years, it can be.

Rosen made the suggestion that mobilization of the stapes be employed to improve impaired hearing in 1952 and made his first report of clinical cases in 1953. I either missed these reports or was not impressed by them—I do not remember which—and it was not until the meeting of the American Academy of Ophthalmology and Otolaryngology in September 1954 that I took serious note of Rosen's technique. He demonstrated several cases at the Academy, and there was considerable and enthusiastic discussion about the procedure.

On my return I reviewed all of Rosen's publications. Anyone who does this will be impressed by the logic of his reasoning, the simplicity of the procedure, and the restoration of normal physiologic hearing in the cases reported. I was very much impressed, and with the cooperation of the chairman of the Department of Otolaryngology at the Tulane University School of Medicine, I secured the necessary instruments and practiced the technique on the cadaver until I felt qualified to perform it on the human subject.

TECHNIQUE

The technique which I have employed follows in all respects the technique of stapes mobilization described by Rosen[3]. The operation is performed under local anesthesia (procaine hydrochloride), after preliminary sedation with nembutal and demerol, as follows:

The objective of the operation is to expose the incudostapedial joint and the stapes through the external auditory canal, so that they can be studied by a magnifying binocular loupe with adequate illumination. This is accomplished through a semicircular incision parallel to the lower half of the ear drum at its attachment to the bony canal and a few millimeters external to it. The drum is elevated beginning from this point, and working from underneath the tympanic membrane, until the lower half of the membrane is folded over upon itself. Adequate visualization can usually be obtained through this approach, which permits inspection of the long process of the incus, the incudostapedial joint, and the stapes with its tendon.

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*Presented before the Section on Eye, Ear, Nose, and Throat at the eighty-seventh annual session of the State Medical Association, May 10-12, 1955, Biloxi, Miss.

†From the Department of Otolaryngology, Tulane University of Louisiana School of Medicine.

When the stapes is fixed, pressure over the incudostapedial joint produces no movement in the joint, the stapes, or the stapedial tendon. When the stapes is mobile, the slightest pressure on it causes movement in all of these structures. Since manipulations are under direct vision, there can be no doubt of the movement of the stapes.

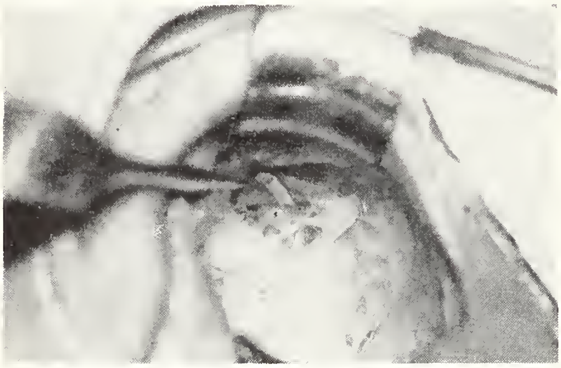

Fig. 1. Curved mobilizer inserted in left middle ear and approaching stapes for mobilization (actual photograph from a cadaver.)

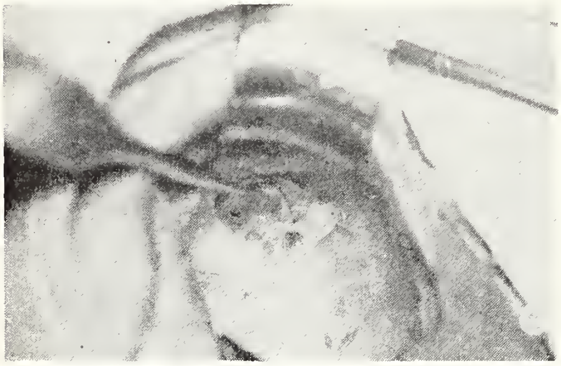

Fig. 2. Mobilizer in place over neck of stapes. Pressure is exerted in the direction of the stapedial tendon.

Mobility is tested by introducing a narrow curved mobilizer with a notched end (Fig. 1) over the incudostapedial joint until the instrument engages the anterior crus of the stapes close to its footplate. The mobilizer is drawn back slowly until the slight depression which represents the neck of the stapes is felt between the crus and the head of the stapes. At this point (Fig. 2) gentle pressure is exerted in the direction of the stapedial tendon to determine whether or not the stapes is mobile.

When pressure is increased over the neck of the stapes, the operator may experience a sudden sensation that something has given way. At this time the patient may say that he heard a loud, grating sound, after which he heard more distinctly. He may understand a low whisper which he could not hear before.

When once the stapes has been felt to give, the least pressure over the incudostapedial joint produces movement in the joint, the stapes and the stapedial tendon. The extent of movement is best determined in the stapedial tendon, which is clearly visible and which relaxes or returns to its original status as pressure over the joint is exerted or removed.

The operation is concluded by laying the tympanic membrane back in its original position and inserting a small vaseline gauze dressing in the external auditory canal.

No special postoperative care, other than antibiotic therapy, is necessary, and the stay in the hospital seldom exceeds 24 hours and is often considerably less.

CASE REPORTS

Case 1. A 49-year-old white man, with bilateral progressive hearing loss for nine years, had worn a hearing aid for three years. His hearing was best in noisy places. He had occasional tinnitus in the right ear. Audiometric examination of this ear (Fig. 3) revealed an average pure tone loss of 50 db (decibels) with good bone conduction.

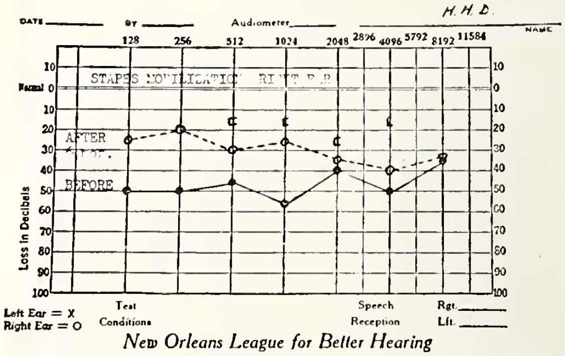

Fig. 3. Air conduction audiogram of right ear (Case 1) before stapes mobilization (solid line) and six months after operation (dotted line). Bone conduction is also shown.

The diagnosis of otosclerosis was confirmed at operation November 10, 1954. The stapes was firmly ankylosed. Mobilization was accomplished by gentle pressure over the anterior crus. When the sudden dislodging movement occurred, the patient said that he felt a grating sensation in his ear, after which sounds seemed closer to him. He was ambulatory the same day and left the hospital the following day. The improvement in hearing evident immediately after operation has been maintained in the ensuing six months. There has been no complaint of tinnitus since the operation.

Case 2. A 42-year-old white male office worker had had difficulty in hearing in the right ear for the past 12 years. During the past four years his hearing had become progressively worse and he had frequent attacks of vertigo and of tinnitus in the affected ear. There was no family history of deafness. The average pure tone hearing loss (Fig. 4) was 45 db with bone conduction at approximately 20 db.

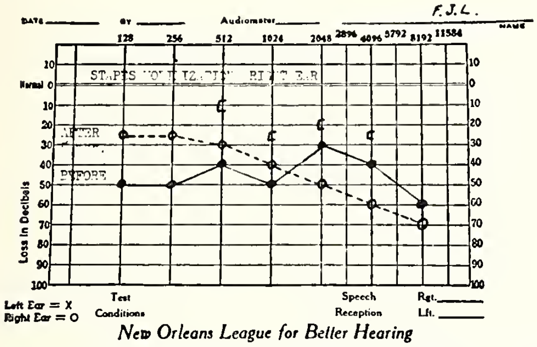

Fig. 4. Air conduction audiogram of right ear before stapes mobilization (solid line) and five months after operation (dotted line). In this case (Case 2) exudate was removed from the tympanic cavity.

At operation November 3, 1954, the right stapes, which was found partially fixed, was mobilized until it was freely movable. An organized exudate was removed from the tympanic cavity. Considerable thickening of the mucosa was observed over the floor of the middle ear and enveloped the footplate of the stapes.

The patient was discharged a few hours after operation. He has had no vertigo since operation and hearing has been maintained at the new level (Fig. 4) for five months. He says that he feels now as if his ear were more open than it was before.

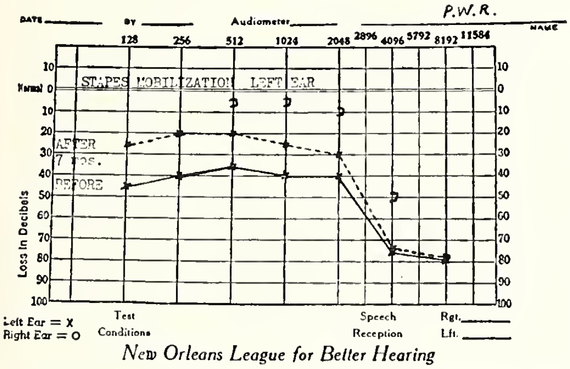

Fig. 5. Air conduction audiogram of left ear before mobilization (solid line) and seven months after operation (dotted line). Conductive hearing loss was improved in this case (Case 3) but the concurrent nerve loss has not been unaffected.

Case 3. A 36-year-old white male college student had experienced progressive bilateral type of deafness, with a pure tone conduction loss of 50 db up to 2,000 cps (cycles per second), and then a sudden drop in the higher tones. Bone conduction was at 15 db up to 2,000 cps, at which point it dropped off sharply. A number of competent otolaryngologists had seen this man and had advised against the fenestration operation because of the associated nerve deafness.

The stapes was found to be rigidly ankylosed when it was inspected October 29, 1954. Gentle pressure over the neck eventually produced free and unimpeded movement. This could be confirmed by applying pressure over the long process of the incus and thus causing movement in the incudostapedial joint, the stapes and the stapedial tendon.

The patient, who was discharged a few hours after operation, had experienced a considerable improvement in hearing on the operating table. The improvement has been maintained up to the present time (Fig. 5). Last week, when he was re-examined, the pure tone level was 20 db up to 2,000 cps, where the nerve deafness took over. In spite of the nerve deafness, this man now has serviceable hearing and is very happy over his improvement.

SUMMARY

The cases described represent a limited experience with stapes mobilization. There have been an equal number in which the operation proved impossible. No harm has been done, however. The fenestration operation can be performed later on these patients, and, as a matter of fact, performed with additional confidence, since the diagnosis of otosclerosis has been confirmed in the course of the earlier procedure.

Stapes mobilization has a number of advantages over the fenestration operation. One of the most important is that, because mobilizing an ankylosed stapes reactivates the normal hearing mechanism, it obviates the necessity for creating a new window into the labyrinth for the passage of sound. The hearing improvement is greater than could be expected with the fenestration operation, since the ossicular chain is preserved intact. The interruption of this chain, it is well known, lowers the hearing by at least 20 db. Another advantage is that stapes mobilization can be performed in mixed type deafness to improve the conductive loss; the third of the reported cases demonstrates this possibility. Still another advantage is that the operation can be done as soon as the diagnosis of otosclerosis is suspected, without waiting, as is necessary in the fenestration operation, for complete fixation of the stapes. Stapes mobilization can be done as soon as the hearing drops just below the critical 30 db level, with the probability that the more formidable fenestration operation will be necessary.

Unlike the fenestration operation, stapes mobilization causes no nausea or vertigo. Hospitalization is no longer than 24 hours, and is frequently less, and healing is complete within a week.

There are apparently no harmful effects from mobilizing the stapes. Before he recommended the operation clinically, Rosen[2] studied the effect of attempted mobilization by fixing the footplate in cement in 31 experiments and suspending vari-

ous weights from the neck of the crura. The investigation showed that the force used in surgical manipulations is considerably less than the maximum weight which had to be applied before fracture occurred. Rosen's[3] opinion is that the stapes can withstand the greatest pressure in the neck.

Only the passage of time will tell whether restored hearing from stapes mobilization will be permanent. Rosen has some cases in which the improvement has lasted well over two years. If improvement is not maintained, re-mobilization is a possibility. It is also highly probable that modern otologists will find the answer to maintaining mobilization in order to insure continued good hearing. Refinements in technique may also result in higher proportion of good results.

SUMMARY

Stapes mobilization, as devised by Rosen, is an important contribution to otology. The operation is a simple, safe, logical and effective method of restoring normal physiologic hearing in deafness caused by otosclerosis. When it is not successful, the fenestration operation can be proceeded with, with no additional risk functionally or otherwise.

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"Year 99"*

CUMMINGS H. McCALL, M.D.
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During the days of this eighty-seventh annual meeting of our association, nearly fifty speakers will appear before general and special sessions. Each will address his audience with authority suited to the particular occasion. During this evening hour, I exercise the happy privilege of addressing myself to you *officially* as the nominal spokesman for the association.

With gratitude, I say to our guests, the friends of medicine who responded to our invitation to attend this occasion, "Welcome." You honor us with your presence, and we are grateful to you. To my colleagues, "Greeting." You *are* the occasion as we observe this ninety-ninth year of the Mississippi State Medical Association and its eighty-seventh annual meeting.

Addresses of presidents are usually excavations of tradition and exhibitions of organizational archaeology. This is a normal course of events, and I suppose that it's rather difficult to avoid a sigh for the past as we regard the future with the expected gravity or courage. By no means is it my purpose to inject unwelcome levity into an otherwise serious and dignified undertaking, but I find neither ease nor entertainment in the artificial climate of pomp and circumstance. Just as you wish to hear your physician's opinion of your condition without the multisyllable medical terms, it follows that our guests and colleagues may relish and savor a few brief, unadorned remarks.

I chose as a title for those remarks "Year 99" for a number of reasons. Most obviously, our association is ninety-nine years old during 1955. There's more behind it than a birthday, for it occurs to most physicians that scientific medicine as we know it today hardly predates a span of a century. It may be conservative to estimate that ninety-nine per cent of our scientific knowledge is ninety-nine years or less in age. Mankind may have turned the intellectual corner in the Renaissance, but he made the grade in the nineteenth century. As far as I'm concerned, the figure "ninety-nine" is our magic, symbolic number tonight.

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*President's address presented before the public meeting, eighty-seventh annual meeting of the Mississippi State Medical Association, Biloxi, Miss., May 10, 1955.

If the horrifying thought that your speaker is about to review the last hundred years of medicine is raising grave doubts on the wisdom of having attended this meeting, please find your ease and rest assured that nothing of the sort is in store. Rather, let's indulge ourselves in that delightful pastime of briefly recalling pleasantries of years ago, of seeing something good and wholesome in the present, and of optimistically looking ahead.

I have yet to find a person who dislikes the doctor of his youth. To be sure, much legend has been heaped on the stereotype of the grand old man of medicine. Stories, anecdotes, paintings, and postage stamps readily portray the frock coat, the kind yet stern countenance, the horse and buggy, and the wonderful black bag from which came the sugar-coated pills and the viscous, evil, mysterious liquids. Near-mythical powers were attributed to him, and he spoke with a voice of authority that none dared to question. Of this, there can be no doubt: He was a part of the beginning of all those things which are good and wholesome in medicine. Generally, he was loved; and where there was doubt, there was always respect. He helped originate the art, if not the science, of medicine.

Today, we physicians devote much time and effort toward the science of medicine, because a deadly virus simply doesn't have the same appreciation for the art that the patient has. But we haven't lost sight of the desirability, if not the necessity, for the art of medicine. While science has been busy moving toward the conquest of infectious diseases, the surgical miracles you take for granted, and the prolonging of human life, the patient has been reducing the legendary nineteenth century doctor to the common denominator of a human being. The doctor speaks with no less authority today than he did ninety-nine years ago; on the contrary, he speaks with a knowledge which would have astonished his grandfather. But the patient, too, has undergone an intellectual transformation. Science taught in high school and college, often required in the liberal arts, has removed the veil of mystery from the marvelous processes of the human body. It's difficult nowadays to find any magazine, periodical, or newspaper which fails to contain from one to ten articles on disease, medical research, treatment, or just a dramatization of a bodily function.

The frock coat has given way to the everyday business suit, and the physical identity of the physician has melted into the busy human scene.

The amazing black bag of grandpa's doctor has been supplanted by the modern armamentarium of incredible drugs and medicines. The marvels of these therapeutic agents are exceeded only by the public's willingness to believe that there's a miracle drug for every ill. The informed person, happily enough, realizes that the success of treatment is still in the hands of the trained physician, the skill of the diagnosis, the treatment of choice—not the super-duper, all-purpose pill.

Grandpa's doctor had a medical diploma nearly three feet wide, complete with ornate, engraved borders, and a solid Latin composition. It was a supernatural confirmation of his occult authority, an assertion which no ordinary mortal dared challenge. Your doctor's medical diploma looks much like your own attestation of a Bachelor of Arts. But let's look behind the paper on the wall.

Medical education has advanced in the past fifty years in the same gross proportion as aviation. Perhaps this startling comparison is something which has never occurred to you before, but the example is clear enough. Just recall the flight of the Wright brothers and compare it with the roar and vapor trail of the supersonic jet you saw today. So it is that medical education in half a century has dramatically advanced to its present high standards. Your physician has the world's best training.

For nearly a generation, only those medical schools which measure up to the most exacting standards of excellence have flourished. They are continuously inspected and graded by the American Medical Association, meaning your own physician who *is* the AMA, on guard to insure that medical service and health care in America shall be second to none.

What of your doctor's training after his graduation from formal schooling? That, too, is the best in the world. His postgraduate training never stops. This meeting during which careful studies, late information, and important findings are presented is but a part of a vast system of your physician's continuing, never-ending education. Nearly one thousand authoritative medical journals are regularly published, and the average American doctor receives from three to fifteen. He belongs to an average of four to ten medical organizations, all of which are devoted primarily to scientific deliberation. The great medical centers are devoted to teaching and research; and their findings, once verified, are made available to all. In the words of Dr. Lamar Bailey who will succeed me as the next president of this association, medicine, unlike the world of business, has no competitive secrets.

Grandpa's doctor may have seen as many as a dozen patients in a busy day. His house calls were slow and arduously accomplished depending upon the condition of the road and the strength of his horse. Your physician can accomplish vastly more today with modern communication, good roads, the automobile, and his modern office and hospital facilities.

It has been my contention that medical care in our nation is distinguished by two characteristics: Quality and availability. While the wonders of medical science which I have tried to describe were taking place, something else has been happening, too. This has been the economic development of medicine, the story of its availability.

All the scientific advances in the world are of little use if they are not available to you through your physician. The patient is ultimately interested in the distribution of medical care, and he wants a service product of uniformly high quality. In the competitive sport of boxing, second best isn't good enough, and it's not good enough when your health is involved. The distribution of medical care means having the doctor of your choice, armed with the best training and information, within a few moments call when you need him. And this is the situation in the nation, in Mississippi, and in your hometown today.

But just how is all this taking place? Upon what sort of system has medicine relied for this coordination of purpose?

Present-day quality medical care, available to all, has come about primarily through medical organization, financed and manned by physicians themselves. It all begins with the individual physician and his personal dedication of service. He affiliates himself with a county medical society which has been chartered by the state medical association. A federation of the fifty-three state and territorial associations is known as the American Medical Association, the world's most authoritative—and democratic—medical body.

Through the AMA, as it is almost universally known, there comes recognition of the specialties, the collection and dissemination of medical knowledge, the fostering of scientific research, medical education, and the fraternal spirit of service among physicians. This isn't the function of government; no laws require this vast, fantastically expensive undertaking; no tax funds are spent to support it—this is the work of your family physician, contributing his time, talent, and substance toward furthering the competence and effectiveness of his profession in your interest. But, even then, he doesn't claim to own the American Medical Association. He simply participates in it as a public trust; in reality, he has given it to the American people as a service institution devoted to the general good in a climate of free enterprise.

Mr. and Mrs. Average American are just beginning to realize the service being performed for them, their children, their neighbors, and community by medical organization. It's becoming happy knowledge that the AMA—meaning your local physician—is expending nearly ten million dollars annually to achieve these ends of service. These dollars are spent mostly on scientific activity, but a watchful eye is kept upon the work of government, and close liaison is maintained with those industries which manufacture and distribute the materials of science which make up the doctor's tools.

During the quarter-century and more that I have been a member of my county medical society, my state association, and my AMA, I have come to realize these things first-hand, I know, for example, when the collective, democratic voice of medicine says that a system of socialization is bad that the good of the public we serve is uppermost. When we level a finger of fearless exposure at the quacks and charlatans who would have you believe that they can restore health by mysterious machines, hammering upon the bone structure which Divine Providence made strong enough to withstand most such abuse, and schemes which lure the gullible, we do it in the deep hope that a life may be saved.

Year ninety-nine offers you much reason for hope and courage. Only last month you learned that polio is destined for the oblivion to which medical science has consigned smallpox and other killers of a bygone era. I have mentioned already the beginning of a complete conquest of the infectious diseases. Next, I believe, will come victories over the nervous and mental diseases, a field where the challenge and tasks are great. The work goes on against cancer and heart disease, but the horizons are brighter. There can be no promise of success by timetable, but there is every evidence that medicine will never abandon its search and its dedication.

If I have had your leave to look ahead, surely you'll grant me the privilege of philosophical retrospect. With all this talk about the modern physician, just where, you may ask, is the grand old gentleman of the medical yesteryear? Look around you and see those distinguished men of medicine who have given their lives toward making both miracles and ideals real. They are upon two scenes: The yesteryear of lone dedication and the present moment of modern medicine. Neither would have been possible without the other.

We are grateful for the participation of the public and the friends of medicine who joined us in observing, as it were, year ninety-nine. It is *for you* that we serve, *with you* that we hope, and *of you* that we are.

Public Relations Programs of the MSMA and AMA*

ROWLAND B. KENNEDY, Executive Secretary
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WHEN THIS brief presentation has been concluded twelve to fifteen minutes from now, I trust that the opinion of this audience will *not* be that the speaker was too late with too little. On the surface, it would appear that my topic is rather prosaic, certainly dry and dull, perhaps even a juncture in this otherwise splendid program to remember that it's good public relations to make your hospital rounds before the hour becomes too late. But I trust that such it not the case. If I were able to do my job perfectly, then I should be able to tell you the complete story of the second most important endeavor in the profession of medicine—your medical public relations.

The term "public relations" has been so badly misused, maltreated, and maligned during the past decade that it appears sensible to give it some sort of direction by way of sound definition. The best general definition I have found runs something like this:

"Public relations is a conscious effort, continuously expressed, toward the end of ingratiating public favor for any given good or service." If that's a little too stuffed-shirt, then it might be reduced to:

"Public relations is simply the art of doing a good job and telling others about it."

Ten or twelve years ago, the term meant just one thing to most physicians: press agentry and ballyhoo, and the subject was just about as welcome as a professional liability suit.

Times have changed, you say? Not exactly. Today, most physicians realize that they have had, now have, and will have public relations. They know that their only option in the matter is to decide whether their public relations will be good or bad. Happily, they are making a choice for good PR. Most medical executive secretaries and public relations directors will tell you that the real medical PR enthusiasts are physicians themselves much more than the lay specialists who work at the detail level in the interest of medicine. This meeting is just such a good example.

By way of continuing this effort at definition and orientation, let's look at American Industry. Through years of fantastic growth from the 1870's through World War I, industry had but to offer a product or service to the nation to make a sale. In these early years, big business wrestled only with the problem of production. The 1920's brought new problems in competition, early government controls, and depression. The prestige of American industry had begun to sink as low as its stock quotations.

Industry caught the vision just about twenty years ago and thus begun the era of genuine public relations effort on the American scene. Today, I believe that you'll find that the four pillars of management function in industry are production, distribution, finance, and public relations.

Still another working definition of PR is " . . . an effort to bring about a happy adjustment between private interests and public responsibility." You see, there's really no basis at all for the misguided notion of past years that public relations is the manipulation of public opinion. Rather, it is total integration of the acts and purposes of the enterprise and its identification with the public interest and general good.

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*Presented at the Public Relations Meeting of the Clarksdale and Six Counties Medical Society, Clarksdale, June 15, 1955.

Your American Medical Association is seeking these constructive ends through its PR program. From an annual budget of about $9-million, AMA expends just under $400,000 for operation of the Department of Public Relations. That's just over $2.50 per physician-member but only about 4½ per cent of the budget. As you know, the vast majority of AMA funds are used for purely scientific activity. A staff of twenty-two highly trained people, most of them under thirty-five years of age, make up the PR department. They carry out your objectives in medical public relations under the direction of the Board of Trustees, which is the same sort of governing body as your MSMA Council.

At national level, PR problems must be attacked from different viewpoints than those approached at state or local levels. AMA has the job of research, definition, planning, programming, and the preparation of materials suited for mass media. AMA must think in terms of a film which will be viewed by ten million persons, a pamphlet production of half a million, a press release with a coverage possibility of fifty million, and the practical formulation of PR policy which will apply equally as well in New England as in Coahoma County.

At state association level, there is still another type of approach indicated. Ours is the job of research and definition in the largest autonomous political subdivision, a state, but the scope of our problems and objectives is usually rather narrow in character when compared to that of national level. For example, West Virginia has a great mining industry and with it, they have union-sponsored health plans offering a tremendous challenge to the expert PR workers. While they ponder the cradle-to-grave medical service demanded by the unions, we in Mississippi wage a holy war to protect a sleepy and sometimes indifferent public from the scourge of licensed cultism. Thus, problems differ from state to state.

A majority of the state medical associations have public relations staffs. These range from the larger states with five to twenty persons to the modest extreme of the smaller associations like your MSMA where the executive secretary is literally it for everything. About one hundred fifty county medical societies in the country now employ full-time executive and public relations personnel ranging from the staff of sixty-two people working for the Los Angeles County Medical Society to your professional neighbors in Memphis with a small office and their executive secretary, the Shelby County Medical Society.

The American Medical Association programs its broad activities in press relations, magazine relations, radio, television, films, and what we in PR call production activities, meaning pamphlets, kits, planned programs, and the like.

AMA programs in public relations envision just about every conceivable service and problem in medicine. Their effectiveness is geared for flexibility and adaptability. Your state association with its lesser sphere of activity strives for sufficient flexibility while following more rigid objectives designed to meet Mississippi needs.

Four annual meetings ago, your MSMA House of Delegates approved a ten-point public relations program which is the keystone of activities today. It is:

1. Education . . . to acquaint the people of Mississippi with a sense of individual responsibility for the maintenance of health; to inform the people truthfully of the capabilities and efforts of medical science.

2. Ethics . . . to continue the high standard of medical ethics as a model and submit of professional and moral aims.

3. Cooperation . . . to work in harmony with agencies and individuals concerned with the free enterprise undertaking of the conservation and maintenance of health.

4. Prepaid Hospital and Medical Care . . . to encourage the universal subscription to volunteer pre-paid hospital and medical plans; to improve individual benefits thereunder through volume extension of these plans.

5. Research and Study . . . to continue, through the Association, to foster further progress in the research and extension of medical science.

6. Hospitals . . . to crusade actively for the establishment facilities which are found inadequate.

7. Medical Schools . . . to continue the active support of the State Medical and of recognized, accredited medical training agencies.

8. Professional Relations . . . to foster and ultimately achieve a physician-patient relationship of mutual confidence and cooperation.

9. Licensure . . . to apply the resources of the profession and the Association unstintingly in an effort to permit only properly trained practitioners legal entry into the healing arts.

10. Anti-Socialization . . . to discharge unselfishly the full responsibilities of the preservation of liberty and freedom and the American Way of Life through unremitting opposition to any at-

tempts to socialize any phase of medical care and science.

This basic program has been augmented from time to time by recommending that local societies establish grievance or mediation committees, audit or tissue committees, emergency call services, public relations meetings such as this one tonight, speakers bureaus, public service projects, and citizenship activities. Your state association offers a helping hand in each of these.

One of the most important PR functions at state level is your *Newsletter*. Its modest beginning was in 1951 when it was mailed to a list of some sixty state and local society officers. You are familiar with its development and the continuing effort to improve its format and contents. It is designed to brief you on non-scientific aspects of your medical practice and your state medical association. This year, the Council directed that the *Newsletter* be sent to each MSMA member on a monthly basis.

Your state association strives for good press relations, working more as a press advisory service than as a news release factory. It is true that more than fifty releases are made each year by the Central Office, but these are usually restricted to newsworthy medical events and policy pronouncements which have been directed by the officers or Council. AMA, on the other hand, with its qualified staff of full-time science writers is most active in the health education field, an activity which would tax severely a small state association.

Your MSMA participates in organization programs which furnish reliable vehicles for disclosing medicine's service aims. Examples are the Mississippi Economic Council, the Jackson Chamber of Commerce, and the various national groups which offer lateral contact with state medical associations. Your association holds membership in the Conference of Presidents and Other Officers of State Medical Associations and the Medical Society Executive Conference, an organization of executive secretaries and public relations personnel.

Your state officers, at a sacrifice of time and money, make many appearances before other professional and lay groups. It would be conservative to estimate that hardly a week passes but that some highly placed MSMA representative participates in such an endeavor. Your President, President-elect, and Constitutional Secretary, alone, average possibly forty public addresses collectively each year.

During 1954, MSMA made regular use of television, programming some fourteen film and two live productions from Jackson. About eighty-five thousand pamphlets were distributed from your Central Office. The Conference of Officers and Committees, conducted by the association for the past two years is primarily a PR program. To sum up, about half the working time of your Central Office and officers is devoted exclusively to your public relations.

This outline, describing activities and objectives, might be regarded as a reasonable PR credo. Your AMA advocates a plan for minimum public relations effort which is sometimes called the "Basic 8," by reason of having eight salient points. These are:

1. Emergency service on a 'round-the-clock basis.
2. A working mediation or grievance committee.
3. Effective press, TV, and radio relations.
4. A working speakers bureau.
5. A reasonable plan for indigent care.
6. Orientation or indoctrination programs for new members.
7. Public service projects.
8. Citizenship activities.

Perhaps a better way to put all of this is to use the words of Dr. Harlan English of Illinois, who, when reporting the work of his committee to the AMA House of Delegates at Atlantic City last week, said that " . . . the only public relations program of any permanent value is the private and public relations of the individual doctor."

It is toward that goal that your Mississippi State Medical Association is working.

This is the final test of a gentleman: His respect for those who can be of no possible use to him.

You are doing your best only when you are trying to improve what you are doing.

Urinary Infections in Adults

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In general, urinary tract infections in adults do not significantly differ from urinary tract infections in children. It is true that some infections are more common in the younger individual, and that there is a difference in the underlying pathology in the children and elderly patients, but the etiology, diagnosis and treatment are essentially the same in all age groups. Many patients with signs or symptoms of urinary tract infections are seen in the office of a busy practitioner. Obviously all of these patients do not require complete urological studies, nor should they all be treated with an appropriate chemotherapeutic without further study. In primary,uncomplicated infections where the physical examination reveals no obvious pathology and a flat film shows no abnormalities, treatment may be started without further study. However, in recurrent or chronic infections, or where some pathology is noted on examination or flat film, or if the primary infection does not respond promptly, further urinary tract studies should be carried out. These studies are ideally carried out simultaneously with or prior to chemotherapeutic measures, since stones, obstruction, and other pathology will make the infection resistant to drugs. Diagnostic steps should be carried out in some logical order, depending on the findings in a given case, and abnormalities should be corrected as soon as possible to prevent the causative organisms from becoming resistant to drugs.

The steps leading to diagnoses will vary with the individual case, but certainly an adequate history is essential. This should be followed by careful physical examination and the urinalysis. This latter procedure must be done on a catheterized specimen in females and on a second glass voided specimen in males. The urinalysis should include a stained smear of the centrifuged sediment. Culture and sensitivity test may be done on the original specimen, if indicated. A flat film of the abdomen is advised in all cases of infection, and pyelograms may then be made where additional studies are desired.

Treatment consists of administration of the appropriate medication. As soon as the acute phase of infection has been cared for, correction of any abnormalities is mandatory. In some cases this may consist of dilatations of strictures or damage where stasis exists. In other instances obstructing tissue or badly diseased organs must be removed. Stones or other foreign bodies should always be removed, unless their small size suggests that spontaneous passage may occur.

The organisms usually causing infections of the urinary tract are gram-negative bacilli and gram-positive cocci. It is estimated that bacilli cause about three quarters of the infections, this figure being even higher in women. We must avoid accepting this as a definite figure, since statistics of different authors show much variation. We must also remember that many of the cases show mixed infections. Certainly the most common causative organism is Esch. Coli. Aerobacter Aerogenes is another gram-negative offender. Proteus and Pseudomonas organisms may be found, and are usually present after instrumentation or surgery. Streptococcus faecalis is the most common of the gram-positive cocci found. This rarely occurs except as a secondary invader following instrumentation or surgery. Micrococci albus and aureus are also important pathogens. These must be differentiated from certain nonpathogenic micrococci commonly found in the male urethra. The hemolytic streptococci and other cocci account for less than five per cent of urinary tract infections. Various organisms, such as acid-fast bacilli, typhoid bacilli, and Salmonella, cause urinary infections on rare occasions.

Organisms may be transmitted through the blood stream, by the lymph channels, directly to the organs from adjacent areas, from external sources such as fistulae or infected foreign bodies, or by ascent along the urinary passage. It is usually impossible to ascertain the route of a given infection, and usually this is of no clinical significance. Ascent of organisms through the urethra is probably much more common in the female, and undoubtedly accounts for the greater frequency of urinary infections in females. Hematogenous infection of the kidney may occur from any organism, but is more common with the coccal group. Various authors have shown that bacteremia develops following passage of urethral instruments, extraction of teeth, tonsillectomies, and various other procedures. It is believed that the kidney capillaries do not normally filter bacteria. However, if there is any injury of these small vessels the organisms may escape into the various tubules. Occasionally large clumps of bacteria may obstruct a capillary. In either instance small abscesses develop in the kidney parenchyma. Such abscesses may be multiple, and later coalesce to form a large abscess within the kidney. Renal carbuncles are formed in this manner, and may rupture spontaneously into the pelvis or into the surrounding tissues.

Various, and often contradictory, studies have been made concerning lymphogenous infection of the kidneys. Attempts have been made to show connection between the lymph channels of the bladder and ureter with the kidney. These have shown conclusively that the lower urinary tract and ureters have lymphatic drainage directly to the aorta, and never to the kidney. Others have suggested lymphatic drainage from the colon to the renal areas, but these have never been proved either. However, it is possible that indirect routes exist, possibly by way of the regional lymph nodes following some lymphatic obstruction. This obstruction itself may be temporary due to edema secondary to the infection.

Bladder inflammations are very common in females, secondary to genital tract infections. This may occasionally be by the lymphatic route, but certainly is more common by way of the urethra. The shortness of the female urethra, accompanied by a poorly developed external sphincter accounts for the very common cystitis and urethro-trigonitis in females of all ages. Vesical inflammations may also occur in the male by way of the urethra. This is uncommon, but can develop after attacks of acute urethritis, gonorrheal or otherwise. Ascending infection from the bladder to the kidneys, by way of the ureter, is very common in both sexes. This is probably due to inefficiency of the uretero-vesical valve mechanism, with reflux along the ureter. The ureter may or may not be directly involved by the inflammatory process. Descending infections, of course, also occur following attacks of pyelonephritis. Occasionally infections are carried to the urinary tract by way of fistulae, or following penetration by an infected foreign body. Passage of urethral instruments or ureteral catheters may introduce organisms into the urinary tract, or spread them to areas previously uninfected. Bladder infections in the male may follow a prostato-seminal vesiculitis. Trauma and obstruction, though not causes of urinary tract infections, must be considered predisposing factors to bacterial invasion.

In choosing the drug for treatment of a urinary tract infection we must first take into account the drug most effective against a known organism. We must also consider the factors of drug resistance by some bacteria, the toxicity of a given drug, synergistic actions of certain drugs, and unfortunately, the cost of certain drugs. The discussion of the cost of medication is most unscientific, and will not be further pursued. However, we all know that this is often the factor governing our choice of drugs. Most of us prefer to give oral medication, but the fact that some drugs can be given parenterally may further influence choice of therapeutic agents. It would be ideal if there were a definite drug which would always give clinical results for a particular causative organism. Such is not the case, but certain groups of organisms definitely show better response to one or more specific drugs. I do not believe that one should await results of cultures and sensitivity tests before beginning treatment of a urinary infection. However, the results of these tests may be of great importance in cases resistant to therapy, and it is advisable to start such tests before treatment is begun.

The sulfonamides are probably the most widely used drugs. These are relatively inexpensive, and in average doses are of low toxicity. Most of the gram-negative bacilli respond to such treatment, Pseudomonas being a definite exception. The common coccal invaders are also usually sensitive to these drugs. Strep. faecalis is a notable exception in this group of organisms. Sulfisoxazole (gantrisin) is one of the most commonly used sulfonamides. The usual dosage in adults is 2 to 4 grams daily, divided into 4 doses. This drug may also be given by vein if the patient is nauseated. Treatment is usually carried out for one to two weeks, and may be repeated at weekly intervals about once a month over a long period of time. Long term therapy that is not interrupted carries the risk of bone marrow depression as well as crystalluria.

Penicillin is at times effective in treating coccal urinary tract infections. However, experience has shown that the percentage of these cases responding to penicillin is becoming less from year to year. Staphylococci seem to develop resistant strains more often than do streptococci. Penicillin is often used in combination with sulfonamides or with streptomycin. There are few toxic reactions to penicillin, although sensitivity frequently develops. The drug may be given by needle or by mouth. My experience with oral penicillin is somewhat limited, but I do not believe that the drug is as satisfactory when given in this manner. The average dosage of procaine penicillin is 300,000 to 600,000 units IM daily, while oral penicillin is given in similar amounts about every six hours.

Streptomycin itself is rarely used in treatment of the ordinary urinary tract infections. Most organisms are not sensitive to this drug, and the dangers of middle ear disturbances have been noted. However, dihydro-streptomycin has less toxic reactions. In combination with penicillin, streptomycin is often effective in treating urinary tract infections. For example, Strep. faecalis, which is resistant to penicillin, can often be successfully treated by combination of penicillin and streptomycin. This synergistic effect is also noted in treatment of other organisms, Proteus at times responding to the combination. It should be noted at this point that penicillin and the mycins (aureomycin, chloromycetin and terramycin) seem to have an antagonistic effect on one another. When streptomycin is used, the average dose in adults is 1 to 2 grams daily in divided doses.

Aureomycin, terramycin, and tetracycline are considered together, as their actions are much the same. All of these drugs are effective against the more common pathogens of the urinary tract, and seem to be of most value in treating Strep. faecalis and Aerobacter aerogenes, as these organisms are resistant to most other drugs. They have relatively little value in treating infections of Proteus and pseudomonas. These drugs may be given orally or parenterally. Tetracycline causes few gastro-intestinal reactions, but the other two drugs named above often produce intestinal disturbances when given by mouth. Simultaneous use of vitamins will at times prevent these complications. Although the three drugs are generally effective against the same groups of organisms, in a specific case any one may be much more effective than the others. The average oral dose is 250 milligrams every six hours. Tetracycline and terramycin may be given intramuscularly, and the average dose is 100 milligrams twice daily. The intravenous forms seem to offer no advantages over intramuscular use, and often produce pain and thrombophlebitis. The intestinal complications, when they occur, are due to changes in the bacterial flora of the intestinal tract. At times a fulminating colitis may develop due to overgrowth of non-sensitive bacteria. When this does occur, the sulfonamides or a combination of penicillin and streptomycin may be effective in treating the colitis.

Chloramphenicol (chloromycetin), is effective in treating most bacillary infections. It is more effective in treating Proteus infections than the previously mentioned drugs, but has little effect on Pseudomonas. Strep. faecalis seems resistant to this drug, although most coccal infections are sensitive. This drug is given in the dosage of 1 to 2 grams daily in divided doses. In rare instances, aplastic anemias result following the use of chloramthenicol. Although these reactions are most uncommon, and usually occur only when the drug has been used for a long period, this reaction is serious and for this reason the drug is generally not used in organisms sensitive to other medications.

Erythromycin is frequently used in infections due to gram-positive cocci. This drug has very little effect on the bacilli, and is not particularly effective in treating Strep. faecalis. In mixed infections erythromycin may be used in combination with the sulfonamides. The average dosage in adults is 200 milligrams every six hours.

Polymixin B is the most effective drug in treating Pseudomonas infections. This is effective only when given parenterally. The usual dosage is 2 to 4 milligrams per kilogram of body weight, as a daily dosage divided into injections every 4 to 6 hours. The patients must be observed closely, as symptoms of renal toxicity may develop. These are usually evidenced by hematuria, albuminuria, and elevation in blood nitrogens. Should this occur, the drug is immediately stopped. Quite frequently minor neurotoxic symptoms develop as evidenced by tingling sensations, paraesthesis, etc. These symptoms are usually not serious and do not require cessation of treatment. They invariably clear several days after treatment is completed. Patients receiving polymyxin B should be hospitalized or kept where they can be constantly observed. Polymyxin B and terramycin have been shown to have a synergistic effect.

Another of the newer drugs used is furadantin. This is effective against most bacillary infections, but is a drug of choice only in Proteus infections. Occasional Pseudomonas organisms are sensitive to it. This drug is generally given in dosages of 400 to 600 milligrams a day in divided doses. Gastric irritation is frequently noted, and it is advisable to give the drug after meals or a small amount of food.

Mandelic acid is still effective in treating many infections, particularly bacillary ones or those due to Strep. faecalis. The usual dosage is 10 to 12 grams daily, in divided doses. It is to be remembered that the urine must be kept quite acid if this drug is to be effective. It may be given with other acidifying drugs, but this is usually not necessary if the ammonium salt is used. Various other drugs are at times used in treating urinary tract infections, but time does not permit discussing these in detail.

In considering the many clinical entities of urinary tract diseases we shall begin with the kidney. All of us are familiar with the symptoms of acute pyelonephritis. These are a spiking fever, accompanied by pain in the flank and usually associated with urinary frequency. Leukocytosis may or may not be present. Examination reveals definite tenderness in one or both kidney areas, and urine examination shows pyuria and often hematuria. The clinical picture in many cases is quite different from this, and gastro-intestinal symptoms not infrequently overshadow all others. All urine examinations in the female should be done on a catheterized specimen. Voided specimens may be used in the male, but the first portion of the specimen should be discarded. Bacteria are usually found on a stained smear of the urinary sediment, but urine cultures are needed to identify the organism. As has been previously noted, it is not necessary to await the results of these cultures before starting treatment. Recurrent attacks, and those not responding to the usual treatments are often due to the presence of obstruction or stone. If either of these exist, and the elevated temperature continues, drainage of the involved kidney must be established either by surgery or the passage of ureteral catheters. Diagnosis of these complications requires a flat film and pyelograms. Intravenous pyelograms are usually preferred, although the dehydration needed for satisfactory films may increase the toxic symptoms. In the presence of reduced kidney function, or if more details are desired, retrograde pyelograms are needed. These, of course, cause some pain, and have the disadvantage of the introduction of foreign materials.

Chronic pyelonephritis is much more common in younger individuals. The symptoms are much the same as acute pyelonephritis, although the fever is generally less marked. These infections are almost invariably associated with obstruction or stasis. Foci of infection have also been mentioned as predisposing factors. These recurrent infections produce scar tissue in the kidney and tend to make subsequent infections more difficult to cure. For this reason adequate therapy is mandatory in any chronic infection, and sterile cultures should be obtained before therapy has been discontinued. Repeat cultures must also be carried out several weeks after discontinuation of the drugs, as the urine may not remain sterile.

The so-called pyelitis of pregnancy is really another form of pyelonephritis. Stasis is a large factor in this disease. The exact etiology of the ureteral dilatation has never been determined, but seems to be due to a combination of mechanical obstruction and hormonal dilatation. Treatment is the same as in other types of pyelonephritis, and we must occasionally pass ureteral catheters for adequate drainage. Elevation of the foot of the bed may be of some assistance in relieving the mechanical pressure on the ureters.

Renal carbuncles are usually due to blood-borne coccal infections. Minute abscesses are formed, and these coalesce to form the carbuncle. Fever is invariably present, and does not usually return to normal as with pyelonephritis. The pain is usually more severe. Pyuria may or may not be present, but urine cultures are almost always positive. Leukocytosis is generally present. A flat film may show change in the contour of the kidney. Pyelograms may or may not show a filling defect. Diagnosis is often difficult, and may depend on exclusion of other diagnoses. Treatment has changed since the advent of the newer drugs, as frequently the infection will respond to antibiotics and no surgery is needed. If the renal carbuncle is of large size, surgery is usually indicated. Adequate drainage or partial nephrectomy is often sufficient, but nephrectomy is still required at other times.

Perinephritic abscesses may be from primary infections in the kidney or from adjacent organs. Those from the kidney are usually due to coccal organisms, and frequently are associated with staphylococci infections elsewhere in the body. These patients have a high fever, pain in the involved flank, and complain of motion of the thigh on the involved side. Urinalysis may or may not show pus and organisms, depending upon whether the abscess communicates with the pelvis. A flat x-ray film usually shows obliteration of the renal and Psoas shadows on the affected side. There is often curvature of the spine with the concavity to the affected side, due to muscle spasm. Doubly exposed films show fixation of the kidney with respiration.

Infections may reach the ureter by descending from hematogenous kidney infections, or by ascending infections from the bladder. Probably some degree of ureteritis occurs in any severe renal infection. As a rule the ureteritis is not of clinical importance, and clears during the treatment of primary disease. In mild ureteral infections the inflammation is usually limited to the mucosa and submucosa, and healing usually occurs uneventfully. In the more severe ureteral infections, the muscularis and peri-ureteral tissues become inflamed, and healing occurs with scar tissue formation. Such lesions later may produce strictures, which lead to obstructive symptoms with more serious consequences. This accounts for some of the cases of hydronephrosis which are observed because of strictures at the ureteral pelvic junction or, less often, lower in the ureter. The diagnosis of acute ureteritis is not usually made, although it frequently exists with other infections. If there is temporary ureteral obstruction due to edema, ureteral colic may occur, requiring catheterization. The diagnosis at times can be made on retrograde pyelograms, as evidenced by the irregularity of the ureteral wall. If obstruction is present, this must be corrected prior to treatment of the infection.

Bladder infections also may occur secondary to descending infections of the kidney, or ascending infection from the urethra. Occasionally, particularly in the female, the infection is spread by the lymphatics. In acute cystitis the bladder is reddened and edematous. This makes it difficult to diagnose a coexisting neoplasm. There may be diffuse inflammation of the entire mucosa, or more commonly, the inflammation is more marked about the bladder neck and trigone. The localized areas of edema may have a bullous appearance, resembling small cysts. In chronic cystitis the mucosa is usually more pale. There may be trabeculation or small bladder capacity due to previous scarring. Some areas assume a granular appearance, these also being more common about the trigone and bladder neck. Occasionally small cysts are noted, particularly about the base of the bladder, and this condition is referred to as cystitis cystica.

Frequency of urination is the most common symptom of acute cystitis. The onset may be insidious, but the condition progresses rapidly, and the frequency is associated often with dysuria and urgency. Pain in the bladder region or perineum may occur. Hematuria, particularly terminal hematuria, is often noted. Pyuria is almost always present, and may be noted grossly by the patient. There is often a low fever present, but high fevers and chills are not usually seen unless there are complications present. The symptoms of chronic cystitis are much the same, though the frequency may be less marked, and the pain less severe. Diagnosis can at times be made merely on the history, but this must be taken in detail to rule out disease of nearby organs. Physical examination may or may not show tenderness over the bladder region, depending on the severity of the disease. Urinalysis should be done in each case. Cystoscopy is not advised in cases of acute cystitis, unless there is some question about the diagnosis. Certainly, if the hematuria is marked, cystoscopy is needed to rule out tumor. Treatment consists of forcing fluids, using the proper antibiotics, and rest in the acute cases. Heat, either in the form of Sitz baths or hot water bottles may give some relief. Antispasmodics, pyridium, and similar drugs often relieve some of the symptoms.

Chronic interstitial cystitis, or "Hunner's Ulcer," must be considered separately from the more common inflammations noted above. It has been estimated that 95 per cent of the patients with this disease are females, although the significance of this is not evident. Chronic interstitial cystitis is quite resistant to treatment. The symptoms are much more severe, and the urine may be perfectly clear both microscopically and bacteriologically. Cystoscopically one may note one or more areas of brownish-red color within the wall of the bladder. These vary in size and shape and often have a stellate appearance. The remainder of the mucosa appears pale or normal. The bladder capacity is quite small, and resists efforts of dilatation. Attempts to dilate the bladder may cause bleeding or the appearance of crevices in the muscosa. The lesions noted above are often difficult to find, as they are located in the dome of the bladder. Their location varies from time to time. Microscopically there is a thickening of the bladder wall and infiltration of lymphocytes, plasma cells and leukocytes. Hypertrophy of the muscle and edema are also noted. The peritoneal coat is thickened. No definite etiology has been found, although many theories exist. This lesion is quite resistant to any treatment. This is evidenced by the numerous types of treatment recommended by different authors. Probably the most accepted treatment at the present time is periodic dilatation. This must be done under anesthesia at various intervals. Office dilatations can be done between hospital visits, but are painful, and there is danger of bladder rupture. Some of the newer antispasmodics have been used in adjunct with some success. In far advanced cases it may be necessary to transplant the ureters into the bladder.

Urethritis in the female is certainly one of the most common of all urinary infections. The cause of this condition is not always obvious, although it is frequently associated with infections in the female genital organs or with a small bladder neck. The condition may be seen in females of all ages, but is most frequently seen during the child-bearing years. The short female urethra, associated with a relatively inefficient sphincter, allows contamination by fecal material and vaginal discharges. Trauma at the times of sexual intercourse or during childbirth, also adds to the etiological factors. In my experience a few cases can be directly related to the use of vaginal douches which are given with excessive pressure, and allowed to continue as the nozzle is withdrawn. Urethritis almost always extends through the bladder neck, and is associated with a chronic trigonitis. Edema is noted at the bladder neck, and frequently produces polypoid structures in this area. Diagnosis can almost always be made by the history of frequency, urgency and burning, not associated with any systemic symptoms. This can easily be confirmed cystoscopically, and should be checked in this manner to rule out any associated disease. If the condition is allowed to continue without treatment the bladder capacity may become quite small, due to absence of distention. Structures of the urethra may also result. Treatment consists of the passage of urethral sounds to dilate the urethra and bladder neck. Bladder dilatations are simultaneously carried out, if the capacity is small. It is usually advisable to instill a mild antiseptic or a weak solution of silver nitrate after the sounds are passed. Most often the urine shows few if any pus cells or bacteria. If these do exist, antibiotic treatment should be given to sterilize the urine. Acute urethritis occurs in the females, but is not common. It may be due to inflammation in the adjacent organs, or may be gonorrheal in origin.

Chronic non-specific anterior urethritis is often seen in the male. This is usually associated with a small amount of urethral discharge. The etiology is not known, and various organisms have been isolated from the discharge. It has been estimated that 80 per cent of the non-specific urethritides are abacterial in nature. Diagnosis is made by excluding gonorrheal and other urethritides. Treatment is often not satisfactory, although some authors have reported success with use of the arsenicals. Occasionally, some of the newer antibiotics are successful in treating this condition, but the results have been far from encouraging. If this type of urethritis is associated with conjunctivitis and polyarthritis, it is termed Reiter's disease. Various other names are used for syndromes characterized by urethritis and inflammations in various organs of the body. In all of these diseases the etiology is unknown and treatment often unsuccessful.

Acute gonorrheal urethritis in the male is seen much less frequently than in days past, but is still far too common. The history is usually typical, but there is enough variation in this to make smear mandatory in all cases with urethral discharge. Diagnosis can be easily made on the basis of a Gram stain in most cases. Infrequently, cultures are required. Most of the newer drugs are effective in treating gonorrheal urethritis, but all cases should be followed to make certain that a cure has been obtained. Fortunately, the complications of this disease are not as common as they once were.

Infections of the prostate gland are properly considered under the male genital tract, but a brief discussion will be given here. In acute inflammation, pain in the perineal region is the most distressing symptom. This is usually accompanied by fever and urinary symptoms. Chronic prostatitis may cause a dull perineal pain, but is more often associated with pain referred to the back. This pain at times radiates down to the thighs and legs. Frequency, urgency, burning and dysuria are commonly noted with chronic prostatitis. Diagnosis is usually not difficult, and may often be made on the basis of history. One must consider infections elsewhere in the body as primary foci. In these cases the infection is usually spread to the prostate by way of the blood stream. Urethral discharge may be present with prostatitis, and studies must be done to differentiate this from acute gonorrheal urethritis. Rectal examination usually reveals enlargement and tenderness of the prostate. Acutely inflamed glands should not be massaged, unless this is necessary to differentiate other disease. In chronic prostatitis, massage is useful in diagnosis and in treatment.

Treatment of acute prostatitis consists of bed rest, local heat applications and the use of antibiotics. Mild laxatives may be needed to prevent trauma from the firm stool. Chronic prostatitis is often resistant to any mode of therapy. Frequent massage encourages drainage of the prostatic secretions and gives better results than any one other type of treatment. The passage of urethral sounds to dilate any stenotic ducts may be necessary to promote drainage. The local application of antibiotics in solution or jellies instilled in the urethra occasionally are adjuncts to other modes of therapy. Some authors have reported good results with instillation of penicillin into the prostatic tissue by way of a perineal needle. These results have not been duplicated by others using the same treatment. It should be emphasized that more than one specimen of prostatic secretions should be examined before making a diagnosis, or before stopping therapy. This is because infection may exist in one part of the gland, while the particular specimen examined has drained from another area. Systemic use of antibiotics is rarely indicated in chronic prostatitis. These infections, unfortunately, tend to reoccur, especially in persons whose occupation requires much driving of motor vehicles or body vibration.

Tuberculosis of the urinary tract is part of a systemic disease, and is metastatic by way of the blood stream from a tuberculous infection elsewhere in the body. The tuberculous process in the kidnev is similar to that of other organs. There has been a definite decline in the frequency of urinary tuberculosis, accompanying the decline in other forms of the disease. However, if the condition still exists, it is often difficult to diagnose.

Frequency is the most common symptom of urinary tuberculosis and is due to bladder irritation. It generally occurs early, and is later accompanied by dysuria and hematuria. Microscopic hematuria and microscopic pyuria are probably the first findings present. These may be present long before the patient has any symptoms, and for this reason all patients with such findings and no obvious pathology should be further investigated. The microscopic hematuria usually comes from ulcerated areas within the kidney. Later these areas become larger, and are accompanied by ulceration of the bladder. At this time gross hematuria is likely to occur. As the disease progresses the bladder becomes more irritable and its capacity much smaller. At this stage the patient complains of severe pain whenever urine accumulates in the bladder and when he voids. The bladder may become intolerant even to the slightest distention.

As with tuberculosis elsewhere in the body, a low grade fever is present early in the disease. With the advanced disease, the fever may become more marked, and be accompanied by chills, and nausea and vomiting. Renal failure occurs at this stage of the disease. While tuberculosis may be localized to one part of the urinary tract, it must be assumed that the entire tract is invaded at one time or another. Diagnosis depends on the identification of the tubercle bacilli in the urine. These may be found on direct examination, or culture and guinea pig inoculation may be required. Unless there is evidence of pathology in each kidney, specimens should be collected separately from each ureter for examination. Negative tuberculin skin tests may be of significance in differential diagnosis.

Intravenous pyelograms are often of value in diagnosing this disease. These give some estimate of function in each kidney, and may occasionally show areas of cavitation not demonstrated on retrograde pyelograms. Retrograde urography is of greater value in demonstrating the lesions of tuberculosis. Early lesions appear as fuzziness and irregularity. Later there are demonstrated areas of dilatation and stenosis. Still later large filling defects and cavities are present. If the tuberculosis is present in an area not connected with the calyceal system, relatively normal pyelograms may be obtained.

Involvement of the ureters may give irregularity in the ureterograms. Later the ureters become dilated and almost fixed due to periureteral involvement. The ureteral orifices may also become fixed and give the appearance of so-called "golf hole ureters." In early bladder involvement, the mucosa appears diffusely inflamed, and areas of ulceration are often noted. In later involvement of the bladder, the marked inflammation and small size of the bladder make adequate examination impossible. The urethra may become involved in the tuberculous process, and strictures and fistulae in this area often occur. Secondary involvement of the genital tract is not unusual in urinary tuberculosis.

Treatment of urinary tuberculosis has undergone a radical change in the past few years. As the disease is systemic, the usual supportive measures are carried out. These consist of bed rest, adequate diet and good nursing care. In the first years of streptomycin therapy, relatively large doses of this drug were used. The complications were many, as treatment had to be continued for several years. At the present time the treatment usually consists of simultaneous administration of streptomycin with either para-aminosalicylic acid or isotinic acid hydrazide, (isoniazid).

In early lesions these drugs give good results and many cases are arrested. It is still too early to evaluate the percentage of cases permanently arrested, as the follow-up must be carried out for many years. These patients with early renal lesions usually get streptomycin, 0.5 gram, intramuscularly twice a week. Twelve grams of para-aminosalicylic acid are given by mouth each day, in divided doses of four grams each, to adults. Patients are frequently unable to tolerate this amount of the drug at first, so smaller doses are started and eventually increased. Treatment must continue for several years, and the patient should be frequently observed in hospitals for repeat pyelograms and cultures.

Isoniazid is occasionally given in conjunction with the other two drugs, but it is usually used with streptomycin alone, if PAS is not tolerated or does not give good results. The average adult dose of this drug is 50 to 100 milligrams three times a day. Toxic reactions are few, and usually disappear if the treatment is stopped.

In far advanced cases with bilateral involvement, results are uniformly poor. When involvement exists only in one kidney, or a portion of one kidney, drug treatment is started and surgery is then carried out. Nephrectomy and complete ureterectomy on one side are advised if the other kidney is in good condition. If the opposite kidney shows early lesions, and the advanced lesion on one side seems restricted to one pole of the kidney, partial nephrectomy may be done. These have been attempted only within the past few years, but results in some cases have been surprisingly good.

In tuberculous involvement of the ureter or bladder, systemic treatment as noted above is given. Where it is possible to remove a kidney and leave the other kidney not infected, the bladder lesions often show improvement. Otherwise, the prognosis in this disease is very poor, and there is very little that can be done, even to give relief to the patient. If the tuberculous bladder lesions are not deep seated, they frequently show good response to streptomycin. Healing of tuberculous lesions of the ureters or urethra is often accompanied by stricture formation. These are resistant to treatment, and may require frequent dilatations or surgery.

It is too early to be sure of the prognosis in tuberculosis of the urinary tract. However, these newer modes of treatment definitely give much relief to patients who would otherwise have years of suffering. The very fact that these drugs allow otherwise inoperable patients to come to surgery makes them more than worth while in treatment of this dread disease.

CONCLUSION

In this paper it has not been possible to consider the details in any phase of the various diseases, but I do hope that this review has brought to mind some of your clinical problems, thus leading to questions or additional reading.

ANNOUNCING

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The New Orleans Graduate Medical Assembly

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FEBRUARY 27, 28, 29 and MARCH 1, 1956

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Dermatology
Franz J. Ingelfinger, M. D., Boston, Mass.
Gastroenterology
John I. Brewer, M. D., Chicago, Ill.
Gynecology
S. Gilbert Blount, Jr., M. D., Denver, Colo.
Internal Medicine
Eugene A. Stead, Jr., M. D., Durham, N. C.
Internal Medicine
John H. Talbott, M. D., Buffalo, N. Y.
Internal Medicine
Lawrence S. Kubie, M. D., New York, N. Y.
Neuropsychiatry
Duncan E. Reid, M. D., Boston, Mass.
Obstetrics
Frank W. Newell, M. D., Chicago, Ill.
Ophthalmology
Claude N. Lambert, M. D., Chicago, Ill.
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A. C. Hilding, M. D., Duluth, Minn.
Otolaryngology
Alan R. Moritz, M. D., Cleveland, Ohio
Pathology
Joseph A. Johnston, M. D., Detroit, Mich.
Pediatrics
Philip J. Hodes, M. D., Philadelphia, Pa.
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Arthur H. Blakemore, M. D., New York, N. Y.
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Toxoplasmosis*

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INTRODUCTION

Toxoplasmosis is a disease which has been recognized in man comparatively recently. Consequently, it presents many fascinating problems concerning transmission, symtomatology, diagnosis, treatment and prevention. The disease probably deserves more attention than it currently receives from practicing physicians. Accordingly, it is particularly appropriate that the subject be discussed at this meeting, since during an 18-month period the Communicable Disease Center has received no requests for toxoplasma serologic tests from the state of Mississippi. During this period of time, over 1,600 sera from 40 other states and the District of Columbia have been tested.

The organism that causes toxoplasmosis, *Toxoplasma gondii*, was discovered in 1908 (Nicolle and Manceaux, 1909) in a small African rodent, and although at times it has been regarded as a yeast or fungus, today it is generally accepted as a protozoan. It is apparently an ubiquitous organism, being found in a variety of species of mammals and birds wherever careful investigations are made. The organism is from 4 to 6 microns long and 2 to 3 microns wide. It is usually crescent shaped with one pointed and one rounded end. When stained, it reveals a relatively large nucleus, located approximately in the center of the organism. It resembles a leishmania organism, but lacks the parabasal body. It multiplies by binary fission. Through multiplication, clusters of organisms accumulate within a host cell which later ruptures to liberate the parasites; or the packed cell may remain intact to form a resting pseudocyst. The organisms may be found throughout the body of infected individuals within endothelial cells, leucocytes and tissue cells, and free in various body fluids. Localization of the parasites may occur in various organs, particularly in the brain and lungs.

SYMPTOMATOLOGY AND CLINICAL DIAGNOSIS

The first description of a human case of toxoplasmosis was made by a Czechoslovakian (Janku) in 1923 in an infant with chorioretinitis and hydrocephalus. Wolf and Cowen in 1937 reported the first case in the United States. Although these first two authentic cases were in infants and exhibited similar conditions, the extensive literature which has recently appeared demonstrates that the symptomatology is much more complex and is not yet fully understood.

In general, the symptomatology of toxoplasmosis depends upon the stage of the disease and the organs which are affected. In *acute* toxoplasmosis, the organisms are distributed throughout the body, and visceral symptoms predominate (sometimes central nervous system symptoms are prominent). In *subacute* cases, the lesions progress in the central nervous system while subsiding in other organs, and neurological symptoms predominate.

Cases are frequently divided into two categories according to when the parasite was acquired. If it is considered to have been acquired in utero during birth, or perhaps from the mother's milk, the case is referred to as congenital toxoplasmosis. The majority of reported cases of toxoplasmosis fall within this category. Most of the congenital cases are subacute, although acute congenital cases with visceral symptoms are sometimes observed. In subacute congenital toxoplasmosis, the neurological symptoms predominate and may present the classic tetrad of symptoms, i.e., convulsive seizures, internal hydrocephalus or microcephaly, cerebral calcification, and chorioretinitis. In such cases death may occur in about one month; or, despite the severity of the symptoms, the patient may survive with a residuum of one or more conditions (retarded physical and mental development, chorioretinitis, blurred vision, convulsive seizures, internal hydrocephalus).

If the infection is acquired later in life, it is termed *acquired* toxoplasmosis. When clinical symptoms are recognized in an adult, the case is generally of an acute nature. In such instances, there is usually an exanthematous rash, fever, malaise, and early pulmonary involvement resembling atypical pneumonia. Some neurological symptoms, such as encephalitis, may develop. Recently a glandular fever type of syndrome with generalized lymphadenopathy has been described which may represent another manifestation of acute acquired toxoplasmosis (Siim, 1951). Subacute acquired toxoplasmosis, at present, constitutes an ill defined category although there is increasing evidence that *Toxoplasma* is a cause of abnormal eye conditions in adults. The frequency with which antibodies to *Toxoplasma* are demonstrated in adults indicates that there are many asymptomatic acquired cases of toxoplasmosis.

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There are no characteristic symptoms which are sufficiently reliable to establish a diagnosis of acute toxoplasmosis, either in infants or adults. Rash, fever, swollen glands, and encephalitis may, of course, have a number of causes. In subacute toxoplasmosis in infants, fairly reliable clinical diagnoses can be made. This is particularly true if the tetrad of symptoms are present. At the present time, clinical diagnosis is unsatisfactory in adults exhibiting neurological symptoms. Although eye lesions in adults have been attributed to toxoplasmosis and the organisms have been demonstrated in enucleated eyes (Wilder, 1952: Jacobs, *et al*, 1954) there is no clear-cut clinical entity that differentiates the lesions from those produced by several other conditions or infectious agents.

EPIDEMIOLOGY AND TRANSMISSION

It is difficult to obtain an accurate figure of the number of congenital cases of toxoplasmosis that have been diagnosed. In a relatively few years, several hundred cases have been described in the literature, but undoubtedly, there are many others unreported. During an 18-month period, we have obtained serologic evidence on approximately 100 cases that, so far as we know, have not been reported in the literature by the attending physicians.

The congenital case presents no particular problem insofar as transmission is concerned. Presumably, organisms circulating in the pregnant mother pass through the placenta into the fetus; or the infant is infected during delivery, or perhaps during nursing. Although it is conceivable that the mother might harbor a latent infection, it is generally believed that she has to have an active acquired infection in order to transmit it to her child. Since mothers seldom reveal symptoms referable to toxoplasma infections, apparently they are resistant to the development of symptoms, while the fetus or neonatal is not.

At present, we simply do not know how the natural acquired case is transmitted. However, transmission in the general population must be quite frequent if the high incidence of serologic positions in adults is an indication. Using the methylene blue dye test, Feldman (1953) has found over 50 per cent of adults in several places within the United States and abroad to give positive results. By drawing analogies from experimental studies in lower animals (Subin and Olitsky, 1937; Cowen and Wolf, 1950) it is conceivable that transmission to man might result from ingestion of contaminated or infected food, from droplet infection, from contamination of skin abrasions, from infected arthropoids, and from intercourse. In regard to the latter, the fact that it is rare to find toxoplasma antibodies in the husbands or mothers of diseased children does not support the experiment evidence of a venereal source.

Recently the possible veterinary public health importance of toxoplasmosis has attracted considerable attention, in view of the frequency with which lower animals are found to be infected. Jacob, *et al* (1952) have found evidence of *Toxoplasma* infection in 12.5 per cent of 80 pigeons collected in Washington, D. C.; and Ericksen and Harboe (1953) reported an epidemic outbreak of toxoplasmosis in a flock of chickens in Norway. In Denmark, evidence of toxoplasmosis was found in 9.4 per cent of 2,812 rabbits (Christiansen and Siim, 1951). The organisms have been reported in swine (Farrell, *et al*, 1952) and in the edible tissues and milk of cattle (Sanger, *et al*, 1953). Miller and Feldman (1953) found serologic evidence of toxoplasmosis in 59 per cent of dogs and 34 per cent of cats studied in Syracuse, New York.

Although we do not know how the animals acquire their infection, nor have we any conclusive evidence of transmission from them to man, this reservoir of infection in man's close animal associates must be given serious consideration in the epidemiology of toxoplasmosis. They may serve as a source of infected food; of contamination of wounds, food, etc., with organisms from their feces, sputum and urine; of blood meals for potenial arthropoid vectors. Greatest suspicion is directed toward the dog and cat that live so intimately within the household. However, it is difficult to incriminate a particular pet dog or cat as the source of a human case because of the high incidence of antibodies among stray animals (Miller and Feldman, 1953).

LABORATORY DIAGNOSIS

The most definitive evidence of the disease is, of course, the actual finding of the organisms in the patient but, unfortunately, in most instances where this has been accomplished, it was at autopsy. In a few instances the organisms have been demonstrated in the living patient in excised lymph node, muscle biopsy, enucleated eye, and in sediment of spinal fluid. However, since the organism is frequently distributed throughout the body of the infected person, particularly during the acute phase of the disease, various materials can be searched in suspected cases: section and impression smears of tissues, sediments of various body fluids, and perhaps blood and sputum. Such materials should generally be fixed in absolute methyl alcohol, stained with Giemsa solution and carefully searched with the oil-immersion objective.

Since it is difficult to differentiate the organisms from various artefacts in materials from the patient, it is important not to fix all of the material in order that some of it can be inoculated into laboratory animals. Tissue suspensions, blood, sediments of body fluids, and other similar materials can be inoculated into a number of laboratory animals in an effort to have the organism, if present, multiply to a demonstrable level. Laboratory white mice are probably the most reliable animals to use, since apparently they have never been demonstrated to harbor natural infections. If unpreserved sterile tissues are to be shipped to a laboratory, they can be placed in vials containing sterile saline or, preferably, sterile skim milk.

Several serologic tests have been proposed to assist in the diagnosis of toxoplasmosis. Only brief reference will be made on this occasion.

1. RABBIT SKIN NEUTRALIZATION TEST was the first to be proposed (Sabin and Olitsky, 1937), but this has been supplanted by more recent techniques.

2. COMPLEMENT FIXATION TEST was first reported by Warren and Sabin in 1942 and is currently in use. The antigen can be prepared from infected mouse brain, from peritoneal exudate of infected mice, and from infected chick embryo. It is generally maintained that the complement-fixation test becomes positive later in the course of the disease and disappears earlier than the methylene blue dye test.

3. METHYLENE BLUE DYE TEST was reported by Sabin and Feldman in 1948. In this test the antibodies modify the *Toxoplasma* organisms in such a way that they do not stain with methylene blue. In performing the test, fourfold dilutions of the sera are prepared and mixed with equal amounts of a suspension of living toxoplasmas (mouse peritoneal fluid diluted with normal human serum). After the tubes are incubated at 37° C for one hour, alkaline methylene blue is added. Mounts are prepared and examined microscopically to determine the proportion of stained and unstained (modified) toxoplasmas. The highest dilution of the serum that has at least 50 per cent of the organisms modified is regarded as the end point or titer of the serum. This test will demonstrate antibodies at an earlier stage in the course of the disease and the antibodies may remain at a demonstrable level for several years, if not for life.

4. SWIN TEST was advocated by Frenkel in 1948. The CF antigen prepared from either the egg or the mouse can be employed. A delayed type of reaction is regarded as positive. Since the skin test reaction is not quantitative and is perhaps less sensitive than the other tests it may be of limited value in the diagnosis of suspected cases.

In 1952, a National Committee on Toxoplasmosis of the National Institutes of Health considered the status of clinical manifestations of toxoplasmosis in man in reference to the assistance that serologic tests could render in the diagnosis of the disease. This committee concluded that reliable interpretations of serologic tests could be made only in congenital cases of toxoplasmosis (Sabin, *et al*, 1952). It was realized, however, that the low incidence of congenital toxoplasmosis in any one state, together with the need for living virulent *Toxoplasma* in the performance of the dye test, which was advocated for routine use, made it impractical for most states to offer this diagnostic service. Therefore, as a result of the recommendations of this committee, in July 1952, the Communicable Disease Center established a toxoplasma laboratory to render reference diagnostic service on congenital cases for the State Health Department laboratories. In requesting this service, the practitioner should submit specimens to the state laboratory, accompanied by a letter or a completed form (supplied by the State Health Department) giving age and sex of the patient, and the principal clinical findings. If the laboratory of the State Health Department is not prepared to perform the test, the specimen will be forwarded to the Communicable Disease Center.

With increased evidence of *Toxoplasma* as a cause of eye lesions in adults (Wilber, 1952; Woods, *et al*, 1954; Jacobs, *et al*, 1954), a conference on granulomatous uveitis was called in December 1954 by the Tropical Medicine and Parasitology Study Section of the National Institutes of Health. Again, it was concluded that there is insufficient scientific information to make possible reliable interpretation of serologic results in connection with cases of eye lesions in adults. As a result of this decision, the Communicable Disease Center has continued to restrict its reference diagnostic service to suspected congenital cases and their mothers.

According to the opinions of the two national conferences mentional above, the role of *Toxoplasma* and the values of the serologic tests in such conditions as adult granulomatous uveitis, cerebral palsy, exanthematous fevers, lymphadenitis and encephalitis of unknown causes are still subjects for research investigations.

TREATMENT

The chief practical benefit derived from a specific diagnosis of congenital toxoplasmosis concerns the good prognosis for subsequent children of given parents (Sabin, *et al*, 1952). Although little can be done for the advanced case, it is comforting to the parents to know that according to best authority the disease will not occur in future offspring.

Fortunately, during recent years therapeutic agents have been discovered which have promise of being effective if given early in the course of the disease. Since this is seldom possible in congenital cases, therapy would be more applicable to acquired cases. In the neighboring state of Tennessee, Dr. Don Eyles and his associates at the National Institute of Health laboratory in Memphis have found the new antimalarial drug, pyrimethamine (a 2.4 - diamino pyrimidine), to be the most effective drug against experimental toxoplasmosis (Eyles and Coleman, 1952). A striking synergistic effect has been observed when daraprim and sulfadiazine are given together which suggests that this combination may become the recommended therapy for the human disease (Eyles and Coleman, 1953). Since these studies were conducted on acute toxoplasmosis when the parasites were actively multiplying, these drugs may not be effective against the chronic stage of the disease (Eyles, 1953).

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Routine Immunization of Infants and Children*

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The modification and prevention of communicable disease by means of active and passive immunization are important weapons in the arsenal of medicine in its battle for the improvement of health. The development of new immunizing agents, the improvement of old ones, and the modification of techniques of immunization makes it necessary for every person concerned with preventive medicine to keep himself informed of these changes.

It is the purpose of this paper to discuss briefly procedures recommended for routine immunization of children in this section of the United States. Special immunization procedures not considered routine are beyond the scope of this paper and will not be mentioned.

SMALLPOX

It is still common for physicians to delay immunization of children against smallpox until they are of school age. This practice is to be condemned. It is indefensible and dangerous not only because the child is not protected against smallpox for many years but also because nearly all reported cases of post-vaccinal encephalitis have followed primary vaccination beyond the period of infancy or earliest childhood[1]. As a matter of fact, the present routine of vaccination at the age of five or six months is unreasonable and has nothing to recommend it except custom. Smallpox vaccination may be successfully performed at any time in infancy after the navel has healed.[2] The younger the child, the milder the reaction.[1,3] It is my practice to vaccinate at the age of three months. This age seems ideal, since passive immunity has probably been lost and the infant cannot voluntarily scratch the vaccination site. Reinoculation should be performed every five years.

The recommended site of vaccination is at a point over the deltoid muscle. Either arm may be used, but the left is customarily chosen. No portion of the lower extremities is considered suitable because of increased danger of infection.

Failure to "take" in a primary vaccination is most often due to faulty technique or the use of non-viable vaccine.

The scratch and intradermal methods of inoculation are undesirable and are not recommended. The multiple pressure technique is superior to all others[1]. No dressing should be applied. Even more important than technique is the avoidance of destruction of the living virus. The vaccinia virus is easily killed by most common antiseptics and by prolonged exposure to temperatures above 0°C. One should never use out-dated vaccine.

It is important to remember, when evaluating the results of vaccination, that revaccination with non-living virus will often produce the so-called "immune reaction", even in persons who are not immune to smallpox.

Children suffering from eczema or from any form of dermatitis should not be vaccinated. The presence of febrile illness has been generally considered to be a contraindication, Hoyne[1], however, states that for thirty years all children entering the Municipal Contagious Disease Hospital of Chicago have been routinely vaccinated on admission if they had no vaccination scar. He has never seen any serious consequences because of such vaccination. There is no contraindication to vaccination of a susceptible individual known to have been exposed to smallpox.

DIPHTHERIA-TETANUS-PERTUSSIS

The attempt to decrease the time and the number of injections necessary for the immunization of infants against diphtheria, tetanus, and pertussis has been successful[4]. The addition of pertussis vaccine apparently enhances the response to diphtheria toxoid. For these reasons, the use of separate antigens in the routine immunization of infants against these diseases has been virtually abandoned except in special cases. Alum precipitated or aluminum hydroxid absorbed antigens produce higher levels of antibodies and longer duration of antibody levels[5,6]. The use of alum precipitated or aluminum hydroxid absorbed antigens has occasionally been objected to because of severe local reactions which sometimes occur. These reactions can be avoided by injection of the material deep in the gluteal muscle, followed by 0.1 cc. of air to clear the needle. Injection sites should be alternated. Sometimes a small nodule may be palpable at the site of injection for a week or more. In my experience, the aluminum hydroxid absorbed antigens are less likely to produce local reactions than the alum precipitated ones. Since I entered private practice in 1949, I have used aluminum hydroxid absorbed triple antigens exclusively and I have not seen a single sterile abscess.

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*Presented before Section on Prev. Medicine at the eighty-seventh annual meeting of the Mississippi State Medical Association, May 10-12, 1955, Biloxi, Miss.

Syringes and needles used for these and for all intradermal, subcutaneous, and intramuscular injections should be autoclaved or boiled for twenty minutes in order that transmission of viral hepatitis may be prevented.

Although the use of combined antigens considerably shortened the course of routine immunization of infants, it apparently complicated the problems of choosing the optimum age for the initiation of the series of injections. Because of the very much increased danger from pertussis in the first six months of life, it is desirable to begin immunizing against this disease as early as possible. However it was formerly believed that because of the presence of maternal antibodies, immunization against diphtheria could not be effective before the age of six months. Consequently it was originally recommended that the initial injection of triple antigens be delayed until six months of age, thus leaving the infant unprotected against pertussis during a critical period.

That this problem was due to an erroneous conception of the infant's ability to form antibodies against diphtheria during the early months of life was shown by di Sant' Agnese and Vahlquist in 1949[7],[8],[9]. In a later paper, diSant' Agnese[10] suggested three months as the optimum age for beginning triple combined inoculation against tetanus, diphtheria, and pertussis, thus achieving immunity several months earlier than by following previous conventional schedules.

At present, then, a recommended routine for immunization against diphtheria, tetanus, and pertussis is as follows: 1) Beginning at three months of age, give 0.5 cc of combined alum precipitated or aluminum hydroxid absorbed antigens at intervals of one month until three injections have been given. 2) A booster injection of 0.5 cc. of combined diphtheria and tetanus toxoids eighteen months after the last injection of the initial series. 3) A second booster injection of 0.5 cc of combined diphtheria and tetanus toxids should be given at the age of five or six years. The pertussis vaccine is eliminated from this booster since, if the child has not acquired permanent immunity to the disease by this age, it is desirable for many reasons for him to have pertussis before reaching adulthood. 4) A third booster injection of 0.5 cc. of combined diphtheria and tetanus toxoids should be given at the age of ten years.

Routine diphtheria-tetanus-pertussis immunization is contraindicated if the infant or child is unwell. Pertussis immunization in particular is contraindicated in children with histories of convulsive episodes.

The 1952 Report of the Committee on Immunization and Therapeutic Procedures of the American Academy of Pediatrics states, "An outbreak of poliomyelitis in one's community is a signal for deferring elective immunization procedures in individuals over the age of six months. Primary immunization and/or recall injections obviously cease to be elective procedures when outbreaks of diphtheria, pertussis, typhoid, or smallpox coexist with that of poliomyelitis."

SEPARATE IMMUNIZATION PROCEDURES

DIPHTHERIA

Previously immunized infants and children exposed to diphtheria should be given 0.25 to 0.5 cc. of fluid diphtheria toxoid immediately.

If there is increasing incidence of diphtheria in the community, immunization should be begun in the first month of life.

TETANUS

Fluid or aluminum hydroxid absorbed tetanus toxoid, 0.5 cc. should be given as soon as possible to burned or wounded children. One half or one fourth of this dose may be given to the child who has had at least two boosters. Alum precipitated toxoid is not recommended in these cases since its recall effect is exerted too slowly.

In some cases of injury necessitating prophylaxis against tetanus there may be some doubt as to the adequacy of the original series. If this doubt exists or if the nature of the injury greatly increases the likelihood of the development of tetanus, fluid toxoid and 5,000 to 10,000 units of antitoxin should be injected in separate sites.

In cases of injury in which there has been no active immunization against tetanus, 5,000 to 10,000 units of antitoxin and 0.5 aluminum hydroxid absorbed or alum precipitated toxoid should be given. This should be followed by a second injection of 0.5 cc. of toxoid in six weeks or more, thus establishing active immunity to tetanus.

PERTUSSIS

If a pertussis outbreak is in progress in the community, immunization should be begun during the first week of age. Three injections of plain vaccine, each containing 90,000 million to 100,000 million organisms, may be given subcutaneously at intervals of one week if rapid immunization appears desirable.

Infants who have not been immunized or whose immunization program is incomplete should, if exposed to pertussis, receive two injections of 20 cc. of human hyperimmune serum three to five days apart or two injections of 2.5 cc. of concentrated human hyperimmune serum three to five days apart.

TYPHOID FEVER

There is still some doubt as to whether typhoid vaccine really affords protection against the disease. Recently immunized persons have been involved in many outbreaks of typhoid fever and there is not even assurance that those who have had the disease are immune. The great decrease in the number of reported cases of typhoid fever is probably largely due to improvement in sanitation, especially in regard to water and milk supplies.

Immunization against typhoid is not recommended as a routine measure except for those living in or expecting to travel in endemic areas. Both straight typhoid vaccine and typhoid-paratyphoid vaccine are available but there is no general agreement as to which one should be used.

The recommended doses of both preparations are the same, children receive one fourth to one half the adult dose of 0.5 cc. repeated twice at intervals of a week. A booster dose of 0.1 cc. injected intradermally, may be given every one to three years.

POLIOMYELITIS

Undoubtedly, immunization against poliomyelitis will become routine in infants and children following the success of the Salk vaccine. The exact age at which immunization should be begun when adequate supplies of vaccine are available cannot be definitely stated. Experience with other vaccine suggests the probability that routine immunization may begin at the age of six months.

The Salk vaccine contains three strains of virus. The Francis report states that vaccination is 60 to 70 per cent effective against disease caused by Type I virus and 90 per cent effective against that caused by Type II and Type III viruses.

Salk has recommended two injections of 1.0 cc. each spaced two to four weeks apart, and a third at the end of seven months. He believes that the immunity following this initial series may last for several years although this remains to be determined by further study.

Other, more effective vaccines against poliomyelitis may be developed. The Salk vaccine contains killed virus which has been grown on monkey kidney cells. Markham[11], in 1954, reported evidence of successful immunization of children with a live poliomyelitis virus, grown on chick embryos and given orally. Some volunteers, immunized with this vaccine, had been followed for more than three years and still retained antibody levels indicating satisfactory immunity.

If the program of routine immunization is to be successful, each child should have a complete immunization record which the parents should keep. Every physician should enter each immunization on this record as it is done. If the record is not available at the time of immunization, a new record should be issued or the old record may be mailed to the physician, the immunization recorded, and the record returned to the parents.

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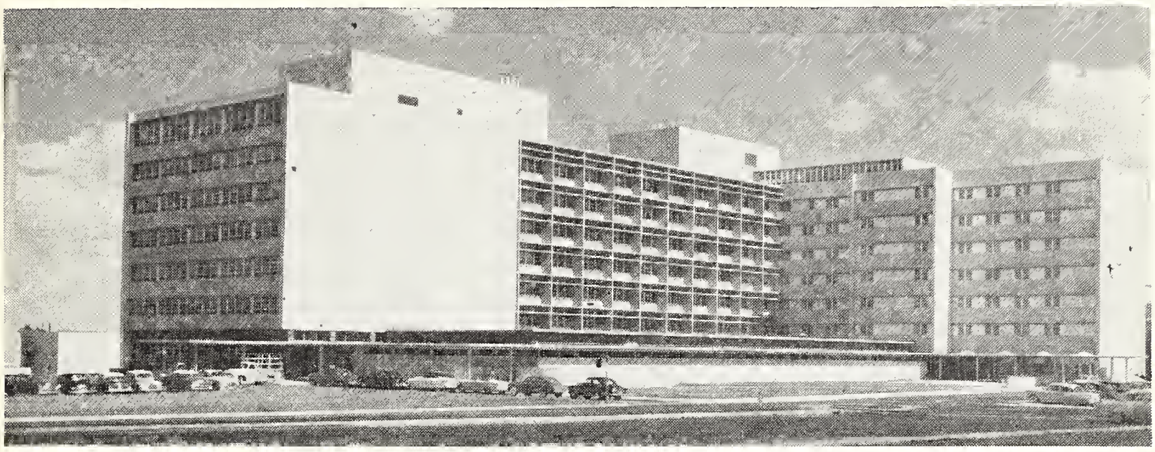
New Medical Center Dedication Marked by Chancellor's Salutation; Governor's Address, and Open House



Program

Dr. Horace Macauley Ivy, presiding.

INVOCATION—The Reverend Marvin A. Franklin, Bishop of the Mississippi Methodist Conference

NATIONAL ANTHEM—The University of Mississippi Band, Lyle G. Babcock, director

WELCOME—Chancellor John D. Williams, the University of Mississippi

INTRODUCTION OF GUESTS—Dr. Ivy

DEDICATION ADDRESS — The Honorable Hugh White, Governor of Mississippi

BENEDICTION—Most Reverend Richard O. Gerow, Bishop of Natchez

3:30-8:00 p.m.—Open House.

CHANCELLOR J. D. WILLIAMS:

Today all the people of Mississippi rejoice in the completion of the first phase of a great cooperative enterprise, an enterprise that will bring improved health and medical care to every home in the state.

The new four-year Medical School, and the Teaching Hospital join the other schools and colleges of the University of Mississippi in dedicated service to the people. These two units will be joined by the School of Nursing next year. As needs demand and resources permit, other units concerned with the health and well being of mankind will be added.

Each of you has participated in one way or another in this great facility. Those of us charged with its operation welcome you to this open house that you may have a close-up view. In the truest sense, the University Medical Center has been built by all of the people of Mississippi to serve all of the people of Mississippi and today is set aside for the people to see what they have done.

GOVERNOR HUGH WHITE:

GOV. WHITE

This is a glorious day for Mississippi.

It is a day which sees a promise fulfilled — a promise based on the precept that human life is sacred and that the health and welfare of her citizens is a state's first consideration.

Never until today has this state been able to accept that challenging responsibility.

For generations, Mississippi has had to depend on the kindness of her sister states, on the teaching institutions in their distant cities, to educate her young men and women in the science and art of healing.

Mississippi has had to learn, second hand, how better to wage war against disease and pestilence, profiting by scientific discoveries made in laboratories not her own.

She has seen thousands of her citizens seek specialized medical care in hospitals remote from their home state.

Now at last, after long and arduous struggle, Mississippi is taking up the high task of educating her own physicians for practice within their own state; of fostering research into the causes and cures of ailments which beset her people, and of providing every possible facility to ease the suffering of her sick, all within her own University Medical Center, located in her own capital city.

We are all justifiably proud of this achievement.

It is a particular and personal joy for me to be privileged, as governor of this great state, to participate in this momentous dedication.

Creation of a fine medical center for Mississippi is a dream I have held and have nurtured for many years. I am proud and humble that its realization has come within my years of service to the people of my native state.

It gives me a considerable pleasure to see so many local friends, alumni of the University of Mississippi, doctors from over the state, lawmakers, well-wishers, and parents of our students gathered here today.

We have come together to dedicate a building. Before us we see a magnificent structure of steel and stone, brick and mortar, an edifice comparable to any in the nation.

Yet this hour is dedicated to more than just a building. It pays homage to any ideal because this huge house of learning is the tangible manifestation of a lofty vision.

The plans and perseverance which preceded stone and mortar form this building's solid foundation. It is buttressed by years of contribution and selfless service. Its cornerstone lies in history.

Let us think back, then, to the time when what we view here was no more than an idea. In our thoughts, we reach back more than a half century to a warm September day in 1903. It was then that a handful of medical students met, for the first time, in two crowded rooms in the old Lyceum building on the University of Mississippi campus in Oxford. They were the pioneers in the two-year school of medicine which served this state for the next fifty years—

Fifty years in which farsighted educators and physicians dreamed of a full four-year school of medicine and an accompanying hospital for this state.

Then, in 1950, there came into being a document significant in the history of medical care in Mississippi. In the early spring of that year, the Mississippi legislature passed, and Governor Fielding Wright signed, an act creating this Medical Center, to be the nucleus for an ambitious scheme of health improvement in Mississippi.

Many people contributed to that victory which came after a long, gradual, uphill fight.

The state is indebted and indeed grateful to all those men and women who conceived of this great enterprise; and without whose vision, enthusiasm, loyalty and support, University Medical Center would not stand before you today.

The late Governor Thomas L. Bailey's administration saw the first moves to establish Mississippi's own school-hospital, encouraged by the Mississippi State Medical Association, over the signatures of such illustrious medical men as Dr. Henry Boswell, Dr. W. H. Anderson and Dr. Augustus Street.

A hospital survey made in 1946 shocked the state into a desire to do something about its shameful situation—forty-eighth in the nation in number of hospital beds available per capita.

By 1950, the Commission on Hospital Care, created to study this need, had joined with citizens committees, physicians, public officials and educators in an unified effort to bring this Center into being.

When in February of that year, Mississippi's House of Representatives was considering the act authored by Hayden Campbell, eighty medical students from Ole Miss made the trip to Jackson to plead for the bill's passage. Senator Mitchell Robinson gave life to the bill which was steered to victory in the Senate by Dr. T. H. Henry.

Then, in June of that same year, Hinds County citizens voted overwhelmingly—18 to 1, in fact—in favor of a bond issue so that this county could add a million and a half dollars to the state's four million and the federal government's three million to construct this center.

So it was that hearts and hands joined, in the county, in the state, and in the nation to make this day of dedication possible.

Even as we pay rightful tribute to those who brought Mississippi's Medical Center into being, let us not face into the past but look squarely into the future.

This Jackson campus of the University of Mississippi will be guided by the same steady hands which hold safe the ideals of our University in Oxford. Chancellor John D. Williams has given untiring effort and wholehearted support to the creation of this Center, and we know he will continue this same unflagging interest in the years to come.

Under the devoted direction of Dr. David Pankratz, whose fifteen-year battle for the establishment of this school has reached such glorious victory, University Medical Center is already preparing 131 Mississippi young men and women to go out into their state as practicing physicians. Soon a full 400 students will throng these halls and as they graduate, 100 strong, they will bring an end to the painful doctor shortage which has plagued this state for years.

No longer will the cream of our youth leave their home state to study, so that a full one-third of them remain in other states, draining from Mississippi her most valuable resource, the minds and bodies and hearts of her future leaders.

Not limited to teaching physicians, University Medical Center will train nurses, beginning in July of next year, providing the only college level nurses' training in this state. Technicians will be taught here in answer to a vast need for related medical personnel.

In the foreseeable future, postgraduate work will be offered physicians in practice. Lifelong learning is a must for the earnest physicians, and postgraduate classes here will bring tremendous benefit to the physician in general practice and to the patients in his care.

Those who worked toward this Center envisioned it as exactly that—the hub in a system of local and regional hospitals—so that each Mississippian would be within reach, both in miles and in dollars, of the best in health care.

They pictured huge houses of healing as growing up around this first institution. And even as this building is dedicated, plans are in progress for a rehabilitation school for crippled children to be located near by. We learn that the federal government looks favorably on the construction of a 500-bed veterans hospital which may some day rise in this same Center of science.

Today, last week and last month, the sick, the suffering from our entire state have come into University Teaching Hospital. Ready to receive them are 350 beds in this, the largest hospital in the state. Half that bed capacity is given over to the less fortunate of our fellow citizens who need help in paying for hospitalization.

All who come to University Teaching Hospital will receive specialist care, augmenting the sound service available on the local level. All will be privileged to contribute to medical learning. A full 50,000 persons yearly will receive tender care in the outpatient department of this modern hospital which has grown under the watchful eyes of its excellent director, Dr. David Wilson.

But the long-term benefit to the state and to humanity which this Medical Center promises, does not end even there.

Here in these halls, and laboratories, are men of science who will delve into the causes of disease as they search for new cures.

University Medical Center is not only a house of healing and of learning, but a center of scientific research and progress, a place where minds are turned and skills blended to better the health of the community.

As our own men of science study the secrets of death-dealing disorders, vital research will be applied to the problems of our own citizens.

In an extra dividend, research will promote a huge new industry for Mississippi as substantial grants-in-aid bring hundreds of thousands of dollars into our University Medical Center.

Those of us who meet here today cannot envision the full benefit to future generations which is contained within these walls.

Our imaginations balk at the limitless implications.

Yet we know that a beacon of knowledge has been lighted today, a steady, unfaltering glow which will brighten our lives, the lives of our children, and our children's children.

It is a beacon which will never be extinguished—bright evidence of a proud state's proudest achievement, a school dedicated to longer, happier lives through teaching, research, and the finest in medical care.

The state capital campus of the University of Mississippi unites, in one building, the three interrelated activities of medical education: teaching, research and service in the cause of better community health.

This handsome, contemporary structure completed in August, 1955, houses the four-year school of medicine, the schools of nursing and medical technology, library, research facilities, outpatient department and a 350-bed teaching hospital.

Dr. David S. Pankratz, dean of the University of Mississippi school of medicine since 1945, is director of the Medical Center. The University hospital is administered by Dr. David B. Wilson.

Chancellor of the University of Mississippi is John D. Williams. The government of the University, by constitutional amendment, is vested in the twelve-member Board of Trustees of the Institutions of Higher Learning.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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OUR FOUR-YEAR MEDICAL SCHOOL

October 24, 1955, made history for the state of Mississippi. Perhaps we should say medical history, but since the strength of a nation is largely in the health of its people, we simply say history. The nine-million-dollar four-year medical school and teaching hospital was dedicated to a better way of providing health more abundant for our people.

The Governor's address was a masterpiece, eloquent with fact, inspired by a vision of service, and activated by faith in the continued progress of our beloved state.

For fifty-three years Mississippi has maintained a two-year medical school and the calibre of its work has been respected throughout the nation. We owe an appreciative tribute to the deans of the two-year school: the late Dr. W. S. Leathers, first dean, Dr. J. O. Crider, Dr. B. S. Guyton and and Dr. D. S. Pankratz. They have built well a fine foundation for the four-year school.

The Mississippi State Medical Association went on record a number of years ago favoring the four-year school. But the power of public opinion that rose up from the small town and rural community was responsible for members of the legislature supporting enabling legislation and adequate appropriation for its creation.

There was a time when Mississippi was looked down upon on account of her poor roads, but now we have one of the best arterial systems of hard-surfaced roads in the nation. We are sure that Mississippi has also the best system of junior colleges known in the nation. Mississippi stands at the top in public health and in other laudable ways.

We believe that Mississippi's four-year medical school is beginning with a very able medical staff. On these men rest the burden of establishing the school's reputation. The school shall be known by its faculty, who in turn determine to a great extent whether medicine as practiced by the school's graduates will be mediocre or superior.

Let us keep in mind that the challenge to medicine is to help build a citizenship adequate to meet all human needs.

Dr. Felix J. Underwood has served Mississippi eminently in the field of public health. We trust that at an early date we may see a new home for our state health department located adjacent to the new medical center.

Also, the need is imperative for a system of nurses' training schools throughout the state to aid our medical program. We are rapidly attaining the finest system of community hospitals to be found anywhere, but we must have well-trained bedside nurses. The nursing profession is the right arm of the medical profession and the training of adequate supply of nurses is our immediate problem.

ACCIDENTAL DEATHS

Accidental deaths constitute a great challenge to the medical profession and to every citizen in our nation. A person's working years are reckoned from twenty to sixty-five; the living years beyond sixty-five. The average for death by accidents in 1954 was forty-six years, the average for death from heart disease sixty-eight years. Accidental death accounts for about seven per cent of all deaths, according to several surveys. It seems that we have not been able to reduce accidental deaths. Accidents take the young and active, the producers, and those upon whom we call to fight our battles.

The growing field for accidents now seems to be the farm, the total deaths per year running to 14,000 with a 1,200,000 injuries and 61.7 deaths per 100,100 farm residents. Farms everywhere are rapidly becoming mechanized, as have farm homes.

We may expect further increase of accidental death on the farm unless a more persistent safety program is respected.

The treatment of wounds on the farm call for special study and special effort on the part of the medical profession. The best treatment is prevention. But after the injury, saving the life is first consideration, then the function of the injured part, the cosmetic result, and the morale must be given due consideration. The weekly newspaper is a good medium for education in prevention. *Today's Health,* our lay health magazine, deserves more professional support of its work.

ANTIBIOTICS HELPING REDUCE HEART DISEASE?

We made the observation three or four years ago that the prompt treatment of influenza, tonsillitis, and colds with the "wonder drugs" would, along with other preventive measures, undoubtedly effect a reduction in heart disease. There are indications that the antibiotics, plus widespread hospital insurance, have reduced much of the end-result disease traced to infections suffered earlier in life. It appears also that acute appendicitis is not as prevalent as it was, pointing to a possible relationship between antibiotic-treated infections and acute appendicitis. However, we can not minimize the importance of early diagnosis and early operation when the case presents.

SMA MEETING.

The Southern Medical Association, which holds its annual session in Houston, Texas, November 14-17, is the second largest medical organization in the nation. Its territory embraces sixteen states and the District of Columbia. It is noted for outstanding scientific programs, and a friendly and cordial atmosphere.

It will be fine to spend four days in Houston, the Deep South's fastest-growing and now largest city. There lingers too the spirit of the colorful soldier and statesman, Sam Houston, from whom the city is named. Fabulous, sprawling, vigorous Texas is so big that we have been told that the people in Houston call the citizens of Dallas damyankees. Of course, the Southern Medical may not be able to take Texas anything, but there's everything to gain and nothing to lose by attending this year's meeting in Houston. Dr. R. L. Sanders of Memphis, the honored president, urges a record attendance.

Dr. W. Raymond McKenzie of Maryland, president-elect, will be elevated to the presidency at the close of this meeting. Dr. J. P. Culpepper of Mississippi is first vice-president. Dr. John Lucas of Greenwood represents Mississippi on the Council. Dr. Guy T. Vise of Meridian is vice-president of the Section on General Practice, and Harvey F. Garrison, Sr., a past-president, of Jackson, is promoting an excellent program for the Section on Pediatrics. We trust Mississippians will attend the Southern Medical in fine numbers.

DR. A. E. BOSTICK

The passing of Dr. A. E. Bostick of Iuka took from the practitioner ranks of our state a choice member. Dr. Bostick was a teacher in his earlier years. Then he went into medicine with an unusual consecration. We believe next year he would have been entitled to his fifty-year certificate and pin. He looked forward to his celebration of this achievement. He led the state for four years in the number of babies he delivered. He was the first doctor as far as we know who gave his typhoid cases a regular and liberal diet, with a hundred per cent record.

Dr. Bostick was an able diagnostician, devoted to his profession, and kept up an active interest in every individual patient. He was a Thomas Edison for work. His rapid and persistent pace he maintained to his very last hours.

We deeply regret the passing of Dr. W. D. Smith of Senatobia. He was an able practitioner and a fine citizen. He was a member of that noble band, the Fifty-Year Club.

When we think of the fine doctors of the Delta we have always included Dr. H. L. Cockerham of Gunnison. He possessed a greatness of spirit which was exhibited in a fine strength of character and a well-balanced medical integrity. We lost a special friend in his passing.

News and Comment

MEDICAL CENTER DEDICATION

Nearly 5,000 Mississippians inspected their new University of Mississippi Medical Center in Jackson on October 24 during dedication festivities.

Immediately following the 3:00 p.m. program, and for five more hours, a steady stream of interested spectators strolled through three floors of the beautiful new four-year school of medicine and teaching hospital. Medical students and regular department personnel explained facilities and equipment which were also clearly labelled.

Highpoints on the tour were x-ray where films were displayed, and surgery, where a complete operation setup was on view, with dummy on the table and instruments ready.

Earlier. a responsive crowd heard Governor Hugh White make the dedicatory address from a platform just outside the entrance into the school of medicine.

Recalling that Mississippi has, for generations, depended on the kindness of her sister states to educate her men and women in the art and science of healing, the governor said "Now, at long last, Mississippi is taking up this high task herself."

"Those of us who meet here today cannot envision the full benefit to future generations which is contained within these walls," the governor went on, as he described the University Medical Center as a fifty-year dream finally realized.

Governor White paid tribute to those whose vision and effort brought the Center into being and lauded its director, Dr. David Pankratz, the director of the University hospital, Dr. David Wilson. and Chancellor J. D. Williams.

The chancellor, in welcoming dedication program guests, said "The new four-year medical school and the teaching hospital join the other schools and colleges of the University of Mississippi in dedicated service to the people. These two units will be joined by the school of nursing next year. As needs demand and resources permit, other units concerned with the health and wellbeing of mankind will be added."

Dr. Horace Macauley Ivy of Meridian, president of the Board of Trustees of the Institutions of Higher Learning, was master of ceremonies for the 30-minute program which was simulcast.

The University of Mississippi band, directed by Lyle Babcock, opened the ceremony by playing the National Anthem, and Bishop Marvin Franklin, Methodist church, offered the invocation. The Most Rev. Richard Gerow, Bishop of Natchez, pronounced the benediction.

Dr. Ivy introduced the distinguished guests who included, in addition to those mentioned, Gov.-Elect J. P. Coleman, former Gov. Fielding Wright, Mrs. Thomas L. Bailey, widow of the late Gov. Bailey; E. F. Ragan, president of the Hinds County Board of Supervisors; Jackson City Commissioners Chalmers Alexander and D. L. Luckey and Sam Carter, president of University of Mississippi alumni.

GEOGRAPHIC FULL-TIME CLINICAL FACULTY

Department of Medicine

Dr. J. R. Snavely, Professor and Chairman

Dr. Warren Bell, Associate Professor

Dr. Thomas M. Blake, Assistant Professor and Chief of Cardiopulmonary section

Dr. Fred Allison, Jr., Assistant Professor and Chief of Infectious disease section

Dr. Herbert G. Langford, Assistant Professor and Chief of Metabolism and Endocrinology

Obstetrics and Gynecology

Dr. Michael Newton, Professor and Chairman

Pediatrics

Dr. Blair Batson, Professor and Chairman

Preventive Medicine

Dr. Thomas J. Brooks, Jr., Professor and Chairman

Dr. Lewis F. Rittelmeyer, Associate Professor, family practice

William Hutchinson, Assistant Professor

Radiology

Dr. Robert Sloan, Professor and Chairman

Surgery

Dr. James Hardy, Professor and Chairman

Dr. G. Bittenbender, Professor of Anesthesiology

Dr. Naomi Dalton, Instructor in Anesthesiology

Dr. Watts R. Webb, Instructor

Dr. Orlando Andy, Professor of Neurosurgery

Dr. James S. Browne, Instructor in Neurosurgery

Dr. Don Turner, Instructor in Surgical Research and Physiology

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MISSISSIPPI CHAPTER ACS

SCIENTIFIC PROGRAM

Friday, November 11 — 2:00-5:00 p.m.
Hotel Heidelburg

1. "Evaluation of Surgical Judgment" — W. P. Sheely, M.D., Gulfport, Miss.

2. "Mediastinitis"—Watts R. Webb, M.D., Sanatorium, Miss.

3. "Radical Neck Dissection: Indications and Scope"—W. Coupery Shands, M.D., Jackson, Miss.

4. "A Practical Approach to Fluid and Blood Replacement"—James Hardy, M.D., Professor and Chairman, Department of Surgery, University of Mississippi School of Medicine.

5. "Inguinal Hernia"—Augustus Street, M.D., Vicksburg, Miss.

Intermission

6. "Pelvic Endometriosis"—Milton L. McCall, Professor and Head, Department of Obstetrics and Gynecology, Louisiana State University School of Medicine.

7. "Surgical Problems in the Elderly Patient"—Willard H. Parsons, M.D., Chairman, Board of Governors, American College of Surgeons, Vicksburg, Miss.

8. "Venograms In the Diagnosis of Venous Disorders of the Lower Extremities"—Raymond Martin, M.D., Jackson, Miss.

Business Meeting and Election of Officers

6:30 p.m.—Fellowship Hour. Hosts—Jackson members of the chapter.

7:30 p.m.—Dinner, entertainment and dancing.

Saturday, November 12

University of Mississippi Medical Center

8:00-9:30 a.m.—Operative Clinics (Schedule to be announced.)

9:30-11:00 a.m.—Staff Presentations

1. "Femoral Nerve Paralysis As A Complication of Pelvic Surgery"—Orlando Andy, M.D., Associate Professor of Neurosurgery.

2. "Abdominal Aortography"—Robert D. Sloan, M.D., Professor of Radiology.

3. "The Cholangitic Hepatitis Variant—An Important Surgical Entity"—John Robert Snavely, M.D., Professor of Medicine.

4. "Intra-Epithelial Carcinoma of the Cervix"—Michael Newton, M.D., Professor of Obstetrics and Gynecology.

5. "Surgery In Presence of Hypotensive Drugs"—Herbert G. Langford, M.D., Assistant Professor of Medicine.

6. "Coagulation Problems As Related to Surgery"—Warren N. Bell, M.D., Associate Professor of Medicine.

7. "Congenital Esophageal Atresia" (Movie)—J. Harvey Johnston, Jr. and George E. Twente, M.D.

11:00-12:00—Surgical Rounds—James Hardy, M.D. and staff.

12:00-1:00—Luncheon, University Cafeteria.

1:00-2:00—Tour of Medical Center.

Afternoon—Recreation

8:00 p.m.—Football: Ole Miss vs. University of Houston, Memorial Stadium, Jackson, Miss.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The nineteenth annual meeting of The New Orleans Graduate Medical Assembly will be held February 27, 28, 29 and March 1, headquarters at the Municipal Auditorium.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. The program will include fifty-four informative discussions on many topics of current medical interest, in addition to clinicopathologic conferences, symposia, color television, medical motion pictures, round-table luncheons and technical exhibits.

The Assembly has planned another interesting postclinical tour to follow the 1956 meeting in New Orleans. On Friday, March 2, a party composed of doctors and their families, will leave New Orleans for the West Indies and Central America via plane. The itinerary includes Puerto Rico, St. Thomas, Haiti, Jamaica, Panama and Guatemala, and arrangements have been made for medical programs in the places visited. The party will arrive in Guatemala City on March 22 and an optional extension to the fascinating highlands of Guatemala has been arranged for.

Details of the New Orleans meeting and the postclinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

STUDY CONFERENCE

A Study Conference called by the American Medical Association to consider methods of informing its membership of certain aspects of pending legislation was held in Chicago, October 22.

H. R. 7225, known as the Social Security Amendments of 1955, includes provisions for the payment of monthly cash benefits to the permanently and totally disabled at age 50. The bill, passed by the House of Representatives last summer, will come before the Senate Finance Committee for public hearings early in the next session of Congress.

Giving the official address of welcome at the conference, Dr. Gunnar Gundersen, chairman of the Board of Trustees, said:

"Our great aim should be to join with other groups and organizations, with the press and other communications media and with responsible leaders of both political parties to separate Social Security and politics. The AMA believes that problems of Social Security should be solved on the basis of sound judgment, an objective analysis of facts, a humane attitude toward human suffering—and not on the basis of political expediency."

MID-SOUTH PROGRAM SHAPING UP

Reports from Dr. Thurman Crawford indicate that the program for the Mid-South Postgraduate Assembly will be one of the best in its history. This assembly's place is unique in the field of medicine for the Mid-South. With the most eminent men in a half dozen specialties gathered from over the nation, the doctor is offered a marvelous review in surgery and medicine in four intensive days.

Mark your calendar for the Mid-South meeting, February 14-17, Peabody Hotel, Memphis, Tenn.

ABSTRACTS FROM PEDIATRIC LITERATURE

Infectious Hepatitis in Children. C. G. Grulee and H. P. Brawner. J. Louisiana M. Soc. 107: 188-193 (May) 1955 (New Orleans)

Infectious hepatitis is a disease of prime importance to any physician who cares for children. Its greatest incidence is in children between the ages of 4 and 14. The severity of the disease is as a rule directly proportional to the age, ranging from mild cases in infants without jaundice to severe cases in older jaundiced children. The vague symptoms of the nonicteric form frequently occurring in infants and young children are particularly difficult to recognize. Even though the clinical course of the disease in these young persons is often prolonged, they seldom suffer permanent liver damage. The fact that they excrete virus in their stools over many months constitutes a difficult problem in preventive medicine which has not yet been solved. The treatment of infectious hepatitis in children, as in adults, is almost entirely symptomatic. Prevention of the disease is possible by careful attention to personal hygiene and by the use of gamma globulin. Effective levels of passive immunity are obtained with doses as small as 0.01 cc. per pound of body weight if given at least seven days before the expected onset of jaundice. Protection can be expected to persist for as long as six weeks.

COMMENT:

This article brings to mind the experiences that we have had on many occasions. Sometimes the diagnosis in these cases is quite difficult; the treatment is even more so, but these suggestions here, relative to that subject are very apropos.

Harvey F. Garrison, M. D.

Someone has said that we now have only two types of pedestrians, the quick and the dead. A pedestrian should always keep to his left when on the road. It is quite likely that he will also soon be required to have both head and tail lights.

James R. Sims, Jr., M.D., announces the reopening of his offices after an absence of three years in serving residences in general oncology and cancer surgery. Practice limited to malignant diseases and general surgery. 613 South Lamar Street, Oxford, Miss.

FOR SALE—5 bassinets and new and used hospital and office equipment. For particulars write Box 269, Columbia, Miss.

GENERAL SURGEON: Desires association or solo practice in city with available hospital facilities. Board eligible, 34, Category IV, university trained, including sub-specialties. Available July, 1956.

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Medical Economics for the Practicing Physician*

GUY T. VISE, M.D.
Meridian, Miss.

Money invested in your own office will yield more dividends on the investment than any stock you can buy on the New York Stock Exchange. Gone are the days when the well-worn, uncomfortable and musty office of the beloved physician sufficed the country-side. Today's office reflects your personality just as your manner, your face and your voice does. An attractive, efficient, comfortable and interesting office shows your patients your interest in them and in the practice of medicine.

LET US FIRST CONSIDER YOUR PLANT

This is your working place and your waiting place for patients. An attractive and well-planned office space, with a pleasing color scheme that is cheerful, yet soft and restful, is important. Your waiting room must have comfortable chairs, with well-placed lights for reading, carefully chosen reading matter and cheerful draperies. These things let your patients know that you are concerned with their comfort. An assortment of magazines, approved comics for the children (and many adults), religious literature and a Bible are all essential to the well-appointed waiting room. Just recently, we have added enlarged pictures of our five children to my waiting room and they have created much interest. The point is to CHANGE things often—get away from the same look, month in and month out. Torn and out-of-date magazines may give the patient the idea that you are as far behind in medicine. Variety in reading matter should be wide but extreme care should guard against offending the most sensitive taste. An interesting book of jokes, offered to a patient in an examination room, is a little courtesy that is appreciated. I keep a few magazines in each examination room and they are changed often. I have found that a clock in the waiting room is not a good thing—it calls attention to the length of time one has waited; a small clock in the receptionist's office will suffice for those who are keeping up with parking meters, etc. Music in the waiting room is good. There are a number of radio programs that provide soft and soothing background music, but a record player, with records of relaxing music, is needed to supplement the radio. Possibly a television is good. I have not had mine long enough to evaluate its merits but I believe there are events and programs offered that will afford some interest, if it is properly supervised.

Air-conditioning is a must in our climate. Few people go to restaurants or picture shows that are not air-conditioned and they appreciate it as much in their doctor's office. Your own efficiency is increased with it, as is that of your staff. Guard against having the temperature too low.

A separate and well-appointed waiting room, with separate drinking fountain and available rest room, is necessary if you treat Negroes. I have a colored waiting room, and a colored treatment room which is identical with the others. I have found no objection to treating them in my office; they take their turn, as do the other patients, and we have experienced no difficulty in handling the situation. It is needless to mention, I am sure, that the same courtesy is extended them. Adequate space is a wonderful investment, and many house calls may be turned into office visits if you have a place where an ill patient may lie down while waiting for you.

Behind the scenes, your working place must be as carefully and efficiently planned. I find that a well-equipped laboratory and x-ray equipment have paid big dividends. I do minor surgery in the clinic, as well as BMR's, electrocardiograms, give diathermy treatments, etc. With a dependable technician and a registered nurse, I find that much work can be done in a relatively short time and from a business as well as a professional standpoint, it is well worth the investment.

With my set-up, I believe one or more doctors associated with me would be practical economically; somehow, the right man and I have never found each other. I believe that you men who are in group practice will clear more on your investment than I, working alone, am able to do. There are many ways in which an alert staff can help you. There is nothing better than the proverbial "oil on the waters" and if your help has your interest at heart, with kindliness behind it, your physical plant will help you do a better job in your chosen profession.

NOW LET US DISCUSS YOUR PERSONNEL

You, alone, cannot render every service that the public wants in these days of magazine articles and write-ups of new techniques in every household magazine. In our day of high income taxes:

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*Delivered at the Public Relations Conference of Clarksdale and Six Counties Medical Society, Clarksdale, Miss., June 15, 1955.

1. Employ the highest type help. Choose people with cheerful attitudes; this is important.
2. Pay top salaries; find someone with ability and pay for it.
3. Show your appreciation of your employees in praise, confidence, courtesy and salary. Loyalty is something that cannot be bought; when you find it, be appreciative of it. And work to deserve it.

FEES — HOW TO MAKE THEM ACCEPTABLE, UNDERSTANDABLE AND COLLECTIVE

Most people today are faced with the high cost of living and most of them want to pay their bills. Encourage them to feel close enough to you to discuss costs. The American Medical Association has an appropriate placard for office displays which invites discussion of fees. I have one in each waiting room and I believe they have led to many satisfactory discussions. The fact that patients know you do invite a discussion of this all-important matter indicates fairness, and I believe they appreciate it more today than ever before. All living expenses are high and the couple that is concerned about the cost of a new baby is going to be concerned over paying for it.

I am sure that there is nothing wrong with our fees. If anything, they are *too low*. Just compare them with a call from the plumber, the electrician, the television or radio repairman. Our whole economic structure today is inflated. The cost of medicine is high, but so is the cost of clothes, transportation, housing, and your yard boy. It is my honest opinion that we in the medical profession have not enjoyed as great an advance in the rising costs as labor has—both skilled and unskilled. But we do need to make our fees acceptable, and then they will be largely collectable.

A very low fee may not be acceptable. It may lead a patient to believe he had a second-rate examination. And we have heard patients *brag* over how high their doctor's fees are. While this is by no means the usual thing, people do want *thorough* examinations and most of them *expect* to pay for them.

In giving a patient a complete work-up, do not rush them through and finish up with them in record time. If you see the patient several times during a series of examinations, you will evaluate his condition better; if you spend a little more time observing him, you will find that patient more interested in paying his bill.

Have no hesitancy in telling patients that you have no means of support except through collection of your fees. Remind them that all costs are higher now, from the salaries of your employees to the cost of supplies and medicines. When in a discussion with them about it, stress the fact that you know they want to pay, and that you are trying to help them work out a definite plan for payment. That takes care of the bulk of a practice. Now for the patients who are *hopeless deadbeats*. They will *never* pay any bill they can avoid. They need *shock* therapy. A good form of shock therapy is to tell them you are quitting them as their doctor; tell them they have shown no respect to you as their doctor, in making no effort to pay their bills. Be frank, firm and absolutely fair. We are all familiar with the Bankrupt Law. It wipes the slate clean for a new start from a hopeless financial condition. This principle, I find, sometimes works in cases of hopeless medical indebtedness. Bills can get so big and so chronic that patients just endure them, like the backache, and do nothing about them. Sometimes it is wise, both professionally and economically, to cancel all old bills, and let a patient start over on a cash basis. Discuss it with him, ask that he keep it confidential since you cannot cancel all debts—and above all, make him feel worthy of this act on your part. After this is agreed upon, try to keep his fees at a level that he can pay—and in very many cases you will have a happier and healthier patient.

People hate to pay doctor bills, due to three things: 1) They do not want their illnesses in the first place; 2) The treatment or surgery was unpleasant and disagreeable; 3) The patient has nothing tangible to show for the money his illness costs. On the other hand, people pay more willingly for a car, television or radio set because: 1) They want it; 2) It is a pleasure to own and use; 3) They have something tangible for their money, to enjoy over the months. With these three strikes against us, easily collectable fees are from *satisfied* patients. Costly bills should be discussed with the patient in advance. Ask how he had planned to pay—how he would like to pay—and wait for his answer. Too often, we start talking about another phase of it and never get a direct commitment. When the patient's need is immediate and critical is the time to make arrangements for collecting. Signing notes for a large bill, or giving a mortgage impresses on the patient his responsibility. We need not be mercenary, but we should practice sound business principles when it is possible. While I know there are times when legal suits to collect fees have been successful, I have never tried to collect through the courts. While you do not want to be tagged as "too easy—a sucker," I believe that in the long run, considered from every viewpoint, your practice of medicine is more rewarding if collecting is not taken to that extreme. I have several trite statements I have used through the years, varying them as the economic conditions vary. Such as:

When the price of beef was very high, I would say, "In the good old days, the family doctor got a cow and a calf for an operation—or a delivery. I am only asking the price of the calf."

"Your wife's operation certainly was worth the price of an old second-hand car, but doctor's fees have not gone up in proportion to the cost of an old car."

When encountering a real sour-puss that looks unhappy about his bill, I usually say, "Well, you got well. What would it have cost you for a nice funeral, with all the trimmings?" Then I slap him on the back and smile. This helps loosen up many a tight-wad.

If the patient infers there was very little work on my part, I tell him the story of the young man who fell out trying to sort potatoes in three bins—one bin for large potatoes—one for medium-sized potatoes—and one for small ones. When found exhausted and almost in shock, he explained to his boss that the decisions were killing him, not the work.

Making a decision not to operate on a suspicious abdomen is hard work for which we are poorly paid.

A good secretary is the most important financial investment in your office. Patients should pass her office on their way out, even if you have to re-arrange your office plan to accomplish this. She can easily ask, "Would you like to pay your bill today?" and not "Shall I bill you later?". She should ask you a positive question, designed to get payment. Always keep plenty of one-dollar bills on hand—both in your office and in your pocket. A good secretary, or nurse, can press collecting more than a doctor can. She can oftentimes make the financial arrangements on a more impersonal basis. While you should never avoid discussing payment with a patient, as you escort him out, you can take him to the secretary and pave the way for her to make arrangements with the patient, or the family of the patient. Patients come to you because they believe in you; and if your fees are collectable at all, the best time to make definite plans is when they are receiving, or about to receive, the desired services from you.

THE CHARITY PATIENT

I am always reminded of Biblical and philosophical ideals when we turn to the charity patient. I try to have FAITH that my work for him will send me others of his family and friends, and I HOPE they will be able to pay their bills. I cannot remember a charity patient who, sooner or later, was not the direct cause of the referral of some patient well able to pay his expenses. In office practice, charity should be used only for very unusual cases. All patients need to pay, at least a token charge. If you feel badly about taking a token fee, increase your pledge to your church. Charity, or semi-charity, patients offer a wonderful grass-roots opportunity for the physicians of America to oppose socialism. These poor people are being led to look for help from a welfare state. They need to be set straight in their thinking. The family doctor has close contact with these people and a few words of explanation, of encouragement, and a little guidance may change the course of their lives. Encourage them to pay in anything they have, be it vegetables, chickens, eggs—anything. Make them realize that you appreciate their efforts, but also try to impress upon them the necessity of them making that effort. It's important for them. Even Christ encouraged the widow to give her mite.

While the practicing physician must always be charitable, he need not have too many charity patients The Bible says a man who will not provide for his own household is worse than an infidel.

I think we doctors need to practice a little more of our own convictions about our American way of life. Freedom's basic principles can be taught by doctors every day. We can help restore the moral and religious fibers of the souls of patients, as well as restore health, if we have the time and the patience to recognize the limitations of many lives, to supplement that lack on every occasion possible—and conscientiously to use the ten talents given to us.

Better do a kindness near at home than walk
a thousand miles to burn incense.

Hospital Relations*

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THE TOPIC assigned is Hospital Relations, and this, of course, will include the relations between the doctor, and the administration, and also, the relations between the medical staff and the administration. Furthermore, may we keep in mind the hospital relations to the public, to the patient and the insurance-covered patient. Much can be said on the above issues. I will approach the matter in a broad general way and discuss the questions which are of serious import today for all concerned. Many details will be overlooked, but we feel that in addressing the doctors of the Mississippi Delta who have been leaders in the community hospitals throughout the state, that the broad field of principle will be more important than that of minute detail.

Also, much of what can be said about public relations of the doctor and the hospital and the public is not new. It is like the medical student who asked Professor Cleveland of Baldwin College if there were not some works in anatomy more recent than those in the college library. "Young man," said the professor, measuring the youthful scholar at a glance, "There have been very few new bones added to the human body during the past ten years."[1]

"The difference between the needs of public relations of a private individual and an institution lies in the fact that the institution lies in the fact lies in the fact that the institution needs to make well known what it is doing and how well it is doing."[2]

Large and small hospitals are discovering that they have many assets which they are still "hiding under a bushel." They are doing many good things and not getting credit for them. Unfortunately, other hospital administrators unintentionally permit spicy telephone operators, for instance, to continue to give the public bad impressions. Many executives are not aware that some attendants or other employees are rude in their contacts with patients and their relatives, all of which reflect on the institution.

Little people have long memories. Just because a patient is not Mr. or Mrs. Big is no reason for rudeness and lack of common courtesy.

Many of the so-called ills of the weakness of the flesh are partly mental. Sympathetic understanding, a kind gesture, a soothing word can put those who seek help at ease and make them easier to treat. In no circumstances should attendants be allowed to conduct themselves in a manner that will reflect discredit on the hospitals as an institution of service devoted to the healing of mankind.

A sound common sense public relations program sincerely conducted for the education and interest of the institution's policies, both internal and external, will do much to help get credit for good work and praiseworthy policies, increasing prestige and win the public's good will, which is the life blood of any institution.

"Summed up, the operation of any hospital becomes mainly a problem in relationships and business statesmanship, if we are to survive."[3]

As a Dallas Hospital administrator says, "The biggest problem facing us today is not only the problem of meeting the unprecedented demands, but also *re-selling* ourselves to our public as human beings devoted to serving humanity."[4]

Any business enterprise or institution, to build and maintain a good position with the public, must start with a good policy. Next comes the application of that policy by all the people connected with the institution. It must start with the "policy" stage and with the people who make up the organization. Management policy does not seem very much unless it is understood and respected by the persons in the institution who apply the policy and who are public relation-minded so that they can instill the policy in others. Public relations is no instrument of force.

Acceptance of a hospital by the public now will depend on many things over and above accommodations and rates. True, there are major factors. Today, however, the public is looking deeper than that. Most persons measure a hospital's efficiency and courtesy by their own experience, either as a patient or as a visitor.

Since the war, the public relations problems of every hospital has been greatly increased. Old methods, pre-war practices, out-moded ideas no longer suffice. Present-day demands of the hospital require that each administrator bring about better understanding between the institution and its public—between doctors, nurses, interns, technicians, attendants, clerks, and patient and visitors.

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"He sweetens our customers," said a big business man of one of his employees in explaining why he liked him. "We can afford to take good care of him because he takes good care of us. He is a sort of ambassador who represents the firm to its customers."

Of late years, much criticism has been leveled against the doctor and the hospital as to slowness and price. You remember Abe Martin said: "It seems like the folks who go to work at 8 or 9 o'clock make all the money."

No longer can a hospital continue to hold and improve the good will of the public unless it is operated in the public interest. This, hospitals have done but they have failed to let the story be told so that the public would know. This can and should be done. This is HOW it can be done: by a study and crystallization of the institution's policies in all departments and situations, and close understanding between the administration, the medical staff and the administration, and the hospital and the patient and patrons.

As someone has said "Successful public relations should always be built on a tripod. *First*, there must be positive and constructive policies; *second*, effective action, and *third*, adequate interpretations. If any one of these three legs is weak or missing, the public relations program will totter and topple. It is the job of every conscientious hospital administrator to see that it does not topple."[5]

"Yet, the scientific laboratory and hospitals have made great strides in our health. Cooperation of the scientific leaders and the surgical and medical staffs and institutions have produced these marvels in the last 50 years: development of such medicines as the sulfa drugs, vitamins, antibiotics, hormones, ACTH, cortisone, and radioactive compounds; perfection of techniques for performing delicate lifesaving operations on such vital organs as the heart and brain; tremendous advances against such scourges as tuberculosis, syphilis, smallpox, rheumatic fever, polio, cancer and heart and blood vessel diseases; almost fifty per cent in reduction in the general death rate, despite an aging of the population; an increase of life expectancy at birth of 21.1 years; affording an American mother 999 chances out of 1,000 of coming safely through childbirth; our health progress has been primarily responsible for the increase in the number of Americans over 65 years of age. While the entire population has doubled since 1900 from 75 million to 160 million, the population of persons over 65 has quadrupled from three million to more than twelve million."[6] All this is truly a living monument to medicine's progress.

We think it is extremely vital that a working relationship be set up between the hospitals and the doctors on both the state and county levels. A common understanding can be developed because both doctors and hospitals use medical associate personnel. The problem of the medical associate or medical assistant has arisen, of course, with the rise of medical technology. In fact, I have heard it said that the general practitioner of today has more power to heal than the great specialist of twenty years ago. And part of the distribution of his power to heal is unquestionably in the hands of those persons who aid in the dispensing of medical services under the direction of a doctor of medicine. And this service is carried through the medical staff, and hospital institutions, and by close cooperation of same as a team.

It has been brought out that one of the leading problems in medicine is the lack of awareness of the business part of the modern hospital. And sometimes, the doctor and administration is not well informed, and does not inform the patient who enters the hospital.

There is nothing worse than the shock of a hospital bill if it previously has not been broached. It is shocking because there are so many items—service charges, professional fees, laboratory fees, and so forth—which must be included in a hospital bill. If the bill were not itemized, its reception would be even worse. "The inexperienced payer of hospital bills usually expects a room bill only, maybe twice that of a hotel, with only a few incidental items tacked on. Often the shock of the bill is followed by the blind desire to incriminate the private practice of medicine. And, unfortunately, first impressions are often lasting."[7]

It was Livingston Farrant who states in his work, *The Great Physician*, "the calm facing of a problem in whatever field, that clear and practiced probing for facts wherever hidden, and reasoning toward the unavoidable conclusion, that patient survey of the field of application and fearless action for possible accomplishment this is the physician."[8]

So, in organizing our hospital staff, we must face all facts calmly. We know that the medical profession recognizes the hospital as a prevalent public relations problem. We must discuss solutions and decide to formulate an information sheet. We believe this will eliminate a human error in communicating these brief facts to the prospective hospital patient. If brevity is too great for some, at least it will cause them to inquire, as suggested, before any damage is done. With facts, figures and statistics furnished by the AMA, any doctor or hospital administrator should be able to convince the patient that he is getting his money's worth. At the same time, we might encourage him to enroll in a voluntary hospital or medical plan. The number of insured patients is steadily growing *but* we must watch the problem of hospitalization just because there is insurance. As a part of our public relations program, we should supply our information sheet to each private patient admitted to any hospital. These sheets can have an introductory note, a list of hospital items, which may appear on the bill, the mention of special nursing fees, and a suggestive footnote about insurance coverage. This sheet is particularly applicable to small rural hospitals and would apply to the larger metropolitan hospitals with only modifications.

Your personal responsibility is great. As Disraeli said: "The most powerful men are not public men. The public man is responsible and a responsible man is a slave. It is private life that governs the world, because you, as individuals, are effective and valuable, you have a right to remain that way and to object to becoming the slaves of a bureaucracy, however well intentioned."[9]

The physician must meet the public every day in the hospital and he can keep in mind that the efficiency of the hospital will be what the doctor is. He must handle the richest man along with the poorest charity case. And it all depends primarily upon the doctor and his own habits and personality. The thought is well expressed in the poem, "It's You."

If you want to live in the kind of town
  Like the kind of town you like,
You needn't slip your clothes in a grip
  And start on a long, long hike,
You'll only find what you left behind,
  For there's nothing that's really new,
It's a knock at yourself when you knock
  your town,
It isn't your town—it's you!

Real towns are not made by men afraid
  Lest somebody else gets ahead.
When everyone works and nobody shirks,
  You can raise a town from the dead.
And if while you make your personal stake
  Your neighbors can make one, too,
Your town will be what you want to see —
  It isn't your town—it's you.

Referring to the question of medical care, industrialist Mr. Bernard M. Baruch said recently, "The need can be met without the government taking over medicine, something I would fiercely oppose." Because he wants to avoid socialized medicine, he urged doctors to lead in working out an adequate medical care program in line with "humanity's legitimate aspirations."

"Too many doctors," he said, "have been fighting a rear-guard action too long. I must warn them: Time is running against them. The medical profession has justly earned great influence. It can keep that hold only as it moves forward. It will lose that hold if it has nothing but objections to offer. If it has eyes only for what not to do, we must look for what can be done, and do it."

Some 60,000 American doctors of medicine answered the call of their country during the recent war. Their work in salvaging the lives of our men and women on the battlefield is a matter of splendid record, and the record should be told to the public, as a sound public relations and publicity program.

The purpose of public relations is:

1. To cultivate through sound press relations and by use of all media available the good will of the public.
2. Through honest and legitimate methods, attempt to influence public opinion for scientific and ethical medicine.
3. As a result of quantities of information being made available to the public it seeks to raise the standard of public intelligence.[10]

Some of the grave complaints which are continually made by the public against hospitals and their administration are as follows:

1. THERE IS LACK OF PERSONAL INTEREST IN THE PATIENT: The doctor has a scientific attitude which treats the disease but forgets the individual. Patients feel they are run through the mill mechanically and the old friendly personal relationship between the doctor and the patient is lacking . . . There is the feeling that the doctor thinks he is the important factor, when in reality 'I am' . . . Doctors do not take time enough to make a careful examination, or give individual attention. The administration and the staff must combat this every day.

2. THE COSTS OF MEDICAL CARE have mounted to the point that only the wealthy can afford medical care. The average patient cannot stand the cost of an operation, or of a lingering illness. The poor man cannot afford to get sick. Surgical fees are sometimes exorbitant. Often bankruptcies are due to three major factors: doctor's bills, hospital bills and borrowing from loan sharks, and 80 per cent of the borrowing from loan sharks is to pay doctors and hospital bills. And there is the grave matter of the ever-present charity case.

The medical staff must use all its skill to assert for reasonable medical expense.

3. THERE IS OVERSPECIALIZATION, which has unduly increased the costs and at the same time makes it more difficult for the average patient to obtain medical attention when needed. Often excessive expense is involved in referring the patient from one specialist to another, and sometimes the charge merely for referring the patient to another specialist is unjustified. It is evident that more old-time general practitioners are needed. There is too much office work and not enough doctors willing to make home calls. Overspecialization carried to the ridiculous extreme often encountered is compared to the 'featherbedding,' a vicious modern labor union practice."[11] Thus, the complaints mount and the patient is viciously criticizing all concerned. Irving S. Cobb once wrote a book "Merely the Patient," but the days of merely the patient are over.

Therefore, the hospital must efficiently promote its public relations, and public relations covers a wide range of individual and group contracts; doctor-doctor relations; doctor-hospital relations; doctor-dentist relations; and other inter-professional relations; doctor-press relations. These are all intimately tied together and all intimately affect the daily living, the daily practice and the daily economy of every physician.[12]

Yet, the medical group actually does more than is demanded, as pointed out by the superintendent of the Drake Memorial Hospital. "The service of the physician is above and beyond his regular line of duty."[13] So in Mississippi daily service with our fine community hospitals and with their personnel find the entire staff producing service beyond the line of duty.

Sir Henry H. Davy wrote: "Life is made up of little things, in which smiles and kindnesses and small obligations are what win and preserve the heart, and secure comfort."

The importance of understanding between the doctors and the hospital administration, be it the individual practitioner or the medical staff, cannot be over-estimated. Every good physician wants his patient to have the best of care and treatment while hospitalized; yet, at the lowest cost possible. The average staff member or private practitioner often doesn't take the time to understand or evaluate the responsibility or liability of the hospital administration. The doctor goes about his diagnosis and treatment with an eye to getting results; getting a patient well and back into his routine life as soon as possible. This is certainly a proper attitude. But, does the busy practitioner dealing in little else than scientific medical procedure ever pause to think of the cost of administration of his desired service and procedure? Does he ever stop to think of the many non-medical items that go into efforts toward his patient's recovery? Not often, we are sure.

Also, the administration of any hospital must first and above all else give thought to the financial side of the situation, because without finance, *and much finance nowadays*, there can be no hospital service. Call it what you may, it simply takes money, and that money can only come from three sources: the paying patient, donations by individuals, and by taxation; and, unfortunately or not, the paying patient is the one who bears the brunt of the burden. Somehow, the tax gatherers and altruists seem less interested in hospital support than hospital building. So the greater portion of the hospital income must come from the one who is able to pay. And if the hospital is to survive and function, the paying patient must contribute enough not only for his own care, but to cover the leaks and losses through those that do not. This is true in all lines of business. The profits of the business man, the banker, or what have you, must be sufficient to cover the profit and loss column.

A moment's thought on the part of the doctor to the administrator's side of the question might do much toward helping and sustaining the solvency of the hospital. There are items of expense that come into the operation of a hospital that are as foreign to medicine or treatment as can be, such as plumbing, wiring, hauling, furniture, repairing, carpentering, etc. These items, as you can see are common to all enterprises. And the hospital does not escape them.

Then comes the hired help of every kind; clerical, professional, telephone operators, orderlies, clerks, cooks, and common laborers. To all this must be added the big item of groceries, medical items, laundry and linen supplies. All these go into the operation of a hospital, and should be taken into consideration. Sometimes, the hospital administrators just have to stop short of what they *know* is the *ideal* because of financial conditions. Every doctor would do well to think on these things. When all doctors do, I am sure that staff members as a group will many times pause to wonder if many of their patients couldn't consummate a full recovery with less than the ideal service, which is always more expensive. We are sure our conscience would be less often strained from recommending some patient for charity when many of them can pay at least a part of their bills. It should be borne in mind that charity service is free to no one but the charity patient. It takes money to handle charity service.

Then, in the hospital, there is the all-abused insurance question. Sometimes the doctor feels justified in recommending hospitalization to all patients carrying sick and accident insurance. They forget that this kind of practice will force insurance rates higher. So, the hospital facilities are yet limited so that perhaps a patient is prevented from much needed hospitalization because of promiscuous occupancy of the insured patient. This has created a problem.

There is an inescapable relationship between the doctor, the staff and the hospital administration, be it less or greater.

"It is through the channels of the hospital that medical scientific energy flows into the community," stated the eminent Professor Hans Zensesses many years ago.[14]

And there are continual problems of finance, accounting, management of a hospital (which is one of the community's largest enterprises), of securing and maintaining trained personnel, of smooth teamwork between all members of the hospital group, of a united front to the public, and of a growing awareness by the public of what the hospital faces. It is said that *what the public does not know hurts the hospital*—so the public must be told. To put across such a job requires men and women of intelligence, understanding, and sympathy. In our hospitals which serve the Delta lowlands we have had and now have such people. We think of them as evergreen men and women.

"There are evergreen men and women in the world, praise be to God!—not many of them, but a few. They are not the show folk. (Nature is an ol-fashiond shopkeeper; she never puts her best goods in the window). They are only the quiet, strong fold. They are stronger than Fate. The storms of life sweep over them, and the biting frosts creep around them, but the winds and the frosts pass away, and they are still standing green and straight." Jerome K. Jerome.

"We live in a world of organization." Can the medical profession escape? As Dr. George Vincent, former president of Rockefeller Foundation asked.[15] Can the doctor escape the law of specialization and integration upon which Herbert Spencer elaborated so remorselessly? No, we are bound with the economics of the times. So in our day the doctor, the staff and the administration must work in cooperation to meet the multivaried problems of the old, indigent, insured and non-insured, and be ready as each day brings new and pressing problems to the hospital.[16]

And so we have a plan to form, duties to fulfill, virtues to practice, powers to develop, knowledge to attain, graces to acquire.[17]

When we reach the end of our thought and review with dismay all these complexities, can we not gain reassurance from those words in Sir Wm. Osler in his *Farewell to the Medical Profession*:

> I have loved no darkness,
> Sophisticated no truth,
> Nursed no delusions,
> Allowed no fears.[18]

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Lester Tuck, administrator for the past five years of the Felix Long Memorial Hospital, Starkville, has resigned and has accepted the administratorship of the Jackson County Hospital, Pascagoula. He replaces I. P. Painter who resigned because of illness in his family.

Chemotherapeutic Agents and Simple Psychotherapy in the Allergic State Survey of 1128 Cases*

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This article has been written for two compelling reasons. The first of these has to do with my obligation to the ethics of medical practice to disseminate knowledge believed to be of potential benefit to other physicians in the treatment of a disease syndrome of obscure etiology which has taxed the ingenuity of thousands of physicians and has taken a terrible toll of millions of patients insofar as constructive work and untold personal suffering is concerned. The second reason is to correct a multitude of grossly erroneous reports as to the nature of this treatment. No useful purpose can be served by stirring up further controversy and we can all agree that gross misrepresentation of facts and the shrill outcries of professional demagogues are poor substitutes for factual reporting and moderation of medical thinking. Personal integrity is a priceless possession which should not be placed in jeopardy by irresponsible words or deeds.

Although this article refers to the allergic state generally, the great mass of material is on bronchial asthma. A small group, however, comprises hay fever, infantile eczema, urticaria, food sensitivities and nasal allergy as separate entities. The general conclusions drawn include all groups. There has been no attempt to describe symptoms or pathology, nor has there been any attempt to define the nature of any of these allergic conditions. It is believed that all physicians doing this work concur in, and accept, the same general concept of definition and symptomatology outlined in current treatises. There is great variance, however, in the concept of etiology and therapy. This paper represents one solution to a difficult problem. It is realized that there may be other and better solutions ahead.

ETIOLOGY

Although the actual etiology of the various allergic manifestations is really unknown, we must consider these aggravating factors:

1. Hereditary—Approximately 98 per cent of all cases analyzed show a definite hereditary trend and this may be the most important single consideration.
2. Emotional—Anxiety, frustration, grief, marital status, financial worry, dependency, invalidism of self or others, anger, lack of appreciation by others, laughter, feelings of insecurity ,and obsessive-compulsive neuroses.
3. Infection—Primarily respiratory, but may be other foci.
4. Inhalants—Animal dander, pollens, penetrating or irritating odors, molds, dust, lint, wool, etc.
5. Ingestants—Primarily foods — chocolate, eggs, nuts, milk, fish, seafoods in general and wheat products. Drugs, such as coal tar derivatives, penicillin, sulfa, mycins and aspirin.
6. Climatic—Sudden changes in temperature, dampness and cold, excessive humidity and wind.
7. Miscellaneous—Physical allergy—heat, sunlight, bathing, cold food or drink, and certain insects.

I do not concur in classifying etiologic factors under "intrinsic" or "extrinsic" since the usual intrinsic factor originates extrinsically and, conversely, extrinsic factors depend upon an intrinsic target to become effective. In other words, for the manifestation of the allergic state, we need the artillery (extrinsic component) as well as the target (intrinsic component) to register on the antigen-antibody complex.

Other etiological factors may be found in depletion of potassium and calcium electrolytes and an excess of the sodium ion. There is a question, however, as to whether this is cause or result.

We find the normal, happy, well-adjusted individual is not likely to develop an allergy. But the worried, harassed, struggling, repressed or depressed individual is a natural target for strong psychosomatic bombardment and, when hereditary factors are present, may react with a syndrome known as asthma, urticaria, eczema, hay fever, angio-neurotic edema, migraine, and even nasal allergy.

Once the allergic state has occurred, subsequent episodes tend to become more frequent and more severe, and the threshold of immunity collapses. At this time, multiple aggravating incidents or allergens appear and result in new episodes—often without rhyme or reason. Highly specialized tissues show physiological changes and may react too little or too much. The resulting phenomena may include bronchospasm, laryngospasm, urticaria, increased glandular activity, diarrhea, pruritis, headache, skin eruptions, nasal obstruction, dyspnea, coughing, sneezing, wheezing, tachycardia, sweating, indigestion, gas formation, constipation, angioneurotic edema, amenorrhea, hoarseness and many others.

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*Presented before the Coast Counties Medical Society, Biloxi, Miss., April, 1955.

STATISTICAL DATA

The statistical data given in this paper represents information obtained by personal examination, interview, or questionnaire in 1128 cases under supervision for a minimum period of two years and a maximum period of seven and one-half years. These patients came from all parts of the United States and represent all social and economic levels. All of the allergic entities are included in this survey but asthma represents about 94 per cent of the group. Many of these asthmatics had associated allergic disorders in addition to asthma *per se.* Approximately 2000 patients whose treatment began over two years prior to this survey were sent questionnaires and 1400 were returned by the deadline. Of those returned, 272 were excluded due to incomplete data, extremely poor cooperation, and/or insufficient time on medication to be statistically significant.

Approximately 300 patients ignored repeated inquiries even though a study of older records in these cases indicated a general conformity with the statistical trend.

Another 300 questionnaires were returned incomplete due to change of residence and no forwarding address. This group also conformed to the general trend based on old records.

An honest effort has been made to evaluate this material conservatively. Overly enthusiastic reports have been reduced to a factual basis. On the other hand some patients have reported only "slight improvement" or "unimproved" even though clinical examination and careful history have demonstrated a better response than admitted. Despite this contradiction in the less favorable cases, the patient's report has been recorded as given to us.

In the entire group of 1128 cases, approximately 80 per cent had been treated unsuccessfully elsewhere. These patients, treated previously by the conventional and accepted procedures of the day, were unhappy and disillusioned over their poor response to treatment.

In the first breakdown of these cases four major groups were formed according to response to treatment (Table 1).

TABLE 1

OVER-ALL RESPONSE TO TREATMENT IN 1128 CASES

1. Free of symptoms for 5 years or more	95	(8.4%)
2. Greatly improved	800	(70.9%)
3. Slightly improved	181	(16.1%)
4. Unimproved	52	(4.6%)
Totals	1128	(100%)

Included in the above response to treatment are 31 deaths which occurred during treatment. Among the deaths there were only 5 cases (16%) showing arsenical reaction. None of these were contributory to death. See Table 2 below.

TABLE 2

DEATHS (31 or approximately 2.7%)

Cause		Arsenical Signs (16%)	
Cardiovascular	16	None	26
Malignancy	9	Mild Transitory Edema	3
Unknown	3	Edema and Pigmentation	1
Acute Infection	1		
Postoperative	1	Edema, Pigmentation and Keratoses	1
Electrocution	1		

All deaths were due to co-existent pathology and entirely unassociated with treatment. All except three cases responded well to treatment. This includes the three "unknown" according to reports from families concerned.

55% of deaths were over 60
30% were between 30 and 60
15% were under 30

It was noted that the best results were obtained in the younger age groups but, surprisingly, older age groups responded quite well too, when general health was satisfactory. (Table 3)

TABLE 3

COMPARISON OF CASES BY AGE GROUPS

Age (yrs.) incl.)	Symptom Free For 5 Years	Greatly Improved	Slightly Improved	Unimproved	Totals	Per Cent
½-5	14	43	2	0	59	5.3
5-14	40	235	41	9	325	30.4
15-29	11	101	23	6	141	12.5
30-59	24	315	77	25	441	40.1
60 and up	6	90	26	9	131	11.7
					1097	100.0%

Note: Statistics on 31 deaths shown elsewhere in this series.

Periods of observation varied from 2 to 7½ years (except for 10 deaths occurring prior to completion of 2 year period). In many instances patients were observed and supervised far beyond treatment period. (Table 4).

TABLE 4

OBSERVATION PERIOD

Duration	Symptom Free For 5 Years	Greatly Improved	Slightly Improved	Unimproved	Deaths	Totals
Less Than 2 Yrs.	0	0	0	0	10	10
2-4 Yrs.	0	238	42	6	11	297
4-5 Yrs.	43	354	91	22	8	518
6 Yrs.	43	165	29	15	1	253
7-7½ Yrs.	9	27	7	6	1	50
Totals	95	784	169	49	31	1128

Many reports have been published concerning the dangers from the prolonged use of Fowler's Solution. In this series of cases and under adequate supervision no serious damage was noted. It is granted, however, that these patients have learned considerable discretion in using medication and take only enough to control asthmatic symptoms and as sparingly as possible (Table 5).

TABLE 5

COMPARISON OF TIME ON TREATMENT WITH RESULTS

Yrs. on Rx.	Symptom Free For 5 Years	Greatly Improved	Slightly Improved	Unimproved	Deaths	Totals
Under 2	11	46	26	12	12	107
2-4	69	489	90	20	11	679
5-6	12	245	49	17	8	331
7-7½	3	4	4	0	0	11
Totals	95	784	169	49	31	1128

The chronicity of asthma varied from a few months to 60 years (or more), prior to treatment. The cases of short duration showed the best response but even the most chronic cases showed marked improvement when the general health otherwise was satisfactory. By combining the "Symptom Free for 5 Years" group with the "Greatly Improved" group we find that duration versus results provides an interesting footnote to Table 6 (below).

Combining 5-Year Cures and Greatly Improved Groups

Under 1 year—91% had excellent results.
From 1-5 years—80% had excellent results.
From 5-20 years—77% had excellent results.
From 21-60 years—69% had excellent results.

TABLE 6

EFFECT OF CHRONICITY

Duration	Symptom Free For 5 Years	Greatly Improved	Slightly Improved	Unimproved	Deaths	Totals
Under 1 yr.	15	56	6	1	0	78
1-5 yrs.	38	251	51	11	7	358
5-20 yrs.	30	341	73	20	14	478
21-60 yrs.	12	136	39	17	10	214
Totals	95	784	169	49	31	1128

MANAGEMENT

Since there have been so many requests from physicians all over the country as to exact procedures and policies and medications employed we shall attempt to set forth the outstanding facts. A meticulous history is taken in each case and this is followed by physical examination. A frank discussion follows in which the patient is informed of the necessity for complete cooperation over a prolonged period of treatment (at least two years) in order to obtain the maximum beneficial results. If possible to do so an appraisal of his prognosis is made. He is encouraged to set forth his problems real and fancied, and psychosomatic factors are reviewed. Reassurance is given the patient when compatible with the facts. He is told he must remain under observation for approximately one week.

The matter of medication is gone into thoroughly. It is explained that the "red liquid" is the most important of all and must be taken exactly as directed. The fact that it contains arsenic is mentioned when feasible and this accentuates the necessity for due care. The patient is told to take one teaspoonful in one-half glass of water, one-half to two hours before each meal and again at bedtime. It is further explained that he will be observed daily to determine the exact time this dosage is to be reduced to three times daily, and is given a prevue on the fact that the dosage will, in one or two months, be reduced to two doses daily and eventually to one daily. Detailed formulae are shown elsewhere in this article.

Except in senility, hypertensive cardio-vascular diseases and arthritis, calcium supplement is recommended. This always to be given after meals due to incompatibility with red liquid.

Since constipation aggravates allergic manifestations, it is necessary to insure daily adequate elimination. In adults past 40 I have found the bile salts quite helpful (Doxychol-K, Decholin, Ketochol, etc.). In children, Milk of Magnesia is advisable. The necessity for an adequate daily bowel movement cannot be stressed too much.

Acute upper respiratory infection or chronic bronchial infections must be treated vigorously for at least four days with appropriate antibiotics since infection results in broncho-spasm in most cases.

Daily examination and interview is necessary to avoid serious drug reaction and to establish a familiar routine for the patient. Explanation of the routine is mandatory to secure patient cooperation over a long period of time.

For nasal allergy causing difficulty in breathing, decongestant nose drops or nasal nebulizers may be employed to open up the passages somewhat. Despite the antipathy to oily nose drops I have found 8 cc. of Amphetamine Solution and light liquid petrolatum q.s. 60 cc. a valuable but slow aid, and entirely non-irritating. Some of the nasal nebulizers have proved quite helpful also, but should be used only when absolutely necessary. Nasal polyps, causing obstruction, should be removed but not as an emergency procedure.

Since it may take three or four days to produce considerable relief from acute symptoms, it may be necessary to use the conventional broncho-dilators temporarily. For the underweight, exhausted and apprehensive patient who has no appetite, vitamin B-12 (500 mcg.) by intramuscular injection two or three times weekly produces excellent results. Simple psychotherapy in the form of reassurance and physician availability at all times is necessary to combat increased nervous tension. Unfortunately, in some cases the amount of medication required to provide relief approaches toxic levels. This calls for modification of strength of medicine or for reduced quantitative dosage and this is where the experience of the physician plays a most important role. This is an individual reaction and has little relationship to the ordinary or conservative dosage employed. Such individuals can control asthmatic manifestations by taking adequate medicine but must be taught to adjust dosage to meet their urgent needs and at the same time to avoid skin manifestations or edema. This requires extremely close cooperation between physician and patient, and most of all, requires an intelligent patient. It is best to tell the patient the whole situation in reference to arsenical manifestations and also iodide reactions. These patients are on the same intelligence and management levels as the diabetic patient. Each must be given considerable leeway in self determination and self medication. Although the physician cannot be present or consulted in every instance, he should make himself reasonably available at all times—a tower of strength. Basically the patient must be warned of the dangerous results from over-medication in this procedure as well as with other accepted powerful drugs.

It has been my observation that a patient when permitted a choice between reasonable comfort on small doses of arsenicals and the over-stimulated, exhausted cycle following more conventional therapy, prefers the former. Such patients can live a relatively normal life and provide security for self and family. It is believed that they are entitled to self-determination just as much as the near hopeless surgical case should have the last word in reference to whether surgery should be performed. In order for such self-determination to be made, the physician must outline the dangers, possibilities and probabilities involved.

DRUG REACTIONS

In this series of cases, all information pertaining to arsenical and to iodide reactions have been enumerated to the very best of my ability. If some reactions were unreported it is because the patient was not sufficiently conscious of the conditions to recognize their significance and hence, may have ignored them. Approximately 30 per cent of the cases showed some evidence of mild arsenical reaction but none of these except the keratoses seemed to be permanent. Increased pigmentation of the skin tended to disappear from six months to one year after Fowler's Solution was discontinued. In some cases it was only necessary to reduce dosage.

In the case of iodide reactions there were no serious problems. Enlargement of the salivary glands was most prominent symptom and a fairly common one. Glands returned to normal within 48 hours in most cases without changing medicine. Acneiform lesions disappeared promptly on reduced iodide intake. See Table 7.

In some cases additional therapeutic agents were deemed necessary. The most important of these were the antibiotics for the control of concurrent or recurrent infection usually located in the bronchial tubes. It is necessary to treat these infections early and vigorously and to alternate the antibiotics employed unless this is precluded by sensitivity. In my opinion chloramphenicol is the most effective of the group and oxytetracycline with vitamins is excellent for alternate or cyclic usage.

With the passage of time since the introduction of Cortisone I have become firmly opposed to the use of this drug except *in extremis.* Many patients

TABLE 7

DRUG REACTIONS

Arsenic

No reaction (70%)—791.
*Reaction (30%)—337.
Breakdown on reactions:
Mild edema—175
Pigmentation—79
Keratoses—17
Erythema—1
Exfoliation—1
Neuropathy—0

*35 cases had more than one manifestation. All lesions except keratoses disappeared with appropriate modification of medicine. Pigmentation returned to normal within one year when patient discontinued arsenic.

Iodides

No reaction (64.8%)—731.
**Reaction (35.2%)—397.
Breakdown on reactions:
Salivary glands—366.
Acneiform lesions—30.
Fungating lesions—1.

**All reactions were temporary and disappeared spontaneously, usually without change in therapy.

have given a history of taking Cortisone daily for periods of one to three years. These patients were, for the most part, out of touch with reality. They had lost their mental acuity, had developed considerable edema, showed some increased pigmentation of skin, almost all had gastro-intestinal disturbances, and some showed masculinizing signs. A small number tolerated the drug very well but allegedly could not discontinue it. All of these patients showed symptoms of "addiction," fear of withdrawal and actual withdrawal symptoms. These patients have an extremely poor prognosis on any regime. In my opinion the adrenals have been damaged beyond repair.

The routine use of ACTH is, likewise, to be deplored but it may be used for a few days to tide a patient over an extremely difficult time until other measures can be effective. The recommended adult dosage is 80 units daily for two days, followed by 60 units daily for two days (but variation may be necessary). In Table 8 the patients who reported the use of Cortisone had taken it under the supervision of other physicians.

TABLE 8

ADDITIONAL THERAPY

Antibiotics	43	390	75	12	7	527	46.8
ACTH	0	7	0	0	0	7	.6
Cortisone	0	24	3	4	1	32	2.9
Combination ACTH and Cortisone	3	89	45	15	3	155	13.7
None	49	274	46	18	20	407	36.0
Totals	95	784	169	49	31	1128	100 %

FORMULAE USED

In making up the red liquid medicine, which is the most important part of chemotherapy, it should be remembered that we are dealing with an incompatible mixture under the most auspicious circumstances and that nothing should be done to add to this handicap. Potassium arsenite is incompatible with digitalis since it precipitates tannins, alkaloids, etc. Furthermore, mixing it with potassium iodide will certainly cause a chemical change over extended periods of time. In the most commonly used formula we have 8 cc. of Fowler's Solution in a 6-ounce prescription which represents 1¼ gr. of arsenic trioxide in this quantity. In the event of any precipitation, unless care is exercised, an overdose of arsenic can result. This should discourage the casual preparation of this prescription. (See Table 9).

TABLE 9

PRESCRIPTION FOR AVERAGE ROBUST ADULT WITH NO KNOWN COMPLICATIONS AND NO DRUG SENSITIVITY

Age and weight range—16-80 yrs., 100-250 lbs.:

Fowler's Solution	8cc,
Tr. Digitalis	4cc.
Phenobarbital	12 grs.
KI	165 grs.
Saccharin	1 gr.
Artesian Water and Red Color	qs. 180 cc.

DOSAGE ROUTINE

1. One teaspoonful in water ½ to 1 hour before meals and at bedtime for 4 days.
2. One teaspoonful in water ½ to 1 hour before meals for 4 to 6 weeks.
3. One teaspoonful in water on arising and on retiring for 6 months.
4. One teaspoonful in water on arising for 1½ years.
5. During relapse after 2 months return to t.i.d. temporarily.

Considerable modification is necessary in the case of children from six months to five years of age. Medication must be made sufficiently palatable to be taken from a teaspoon without dilution. The potassium iodide is dissolved in one ounce of water before other drugs and/or vehicles are added. Red coloring and saccharin are not used since vehicles provide sweetness and color. (See Table 10).

TABLE 10

PRESCRIPTION FOR SMALL CHILDREN

Age and Weight Range	Fowler's Solution	Tr. Digitalis	Elixir Phenobarbital	Benylin Expectorant	KI	Artesian Water
½-1 yr. 18-28 lbs.	2cc.	2cc.	75cc.	75cc.	40grs.	30cc.
1-3 yrs. 30-40 lbs.	3cc.	2cc.	75cc.	75cc.	60grs.	30cc.
3-4 yrs. 40-45 lbs.	4cc.	3cc.	75cc.	75cc.	80grs.	30cc.
4-5 yrs. 40-50 lbs.	4½cc.	3cc.	75cc.	75cc.	90grs.	30cc.

With the greater ease of management in older children and adolescents the trend is toward the adult type mixture and the same dosage routine. It will be noted that children tolerate and respond well to larger comparative doses. It is seldom that any reaction is observed in this group. (See Table 11.)

TABLE II
PRESCRIPTION FOR CHILDREN AND ADOLESCENTS

Age and Weight Range	Fowler's Solution	Tr. Digitalis	Phenobarbital	KI	Saccharin	Artesian Water and Red Color
4-6 yrs. 50-70 lbs.	5cc.	3cc.	8grs.	100grs.	1gr.	qs. 180cc.
6-10 yrs. 55-100 lbs.	6cc.	3cc.	9grs.	120grs.	1gr.	qs. 180cc.
10-14 yrs. 100-130 lbs.	7cc	3cc.	10½grs.	140grs.	1gr.	qs. 180cc.
14-16 yrs. 100-130 lbs.	7½cc.	3cc.	10½grs.	150grs.	1gr.	qs. 180cc.

In those cases where persistent edema, pruritic erythema, increased pigmentation or keratoses are noted it is advisable to reduce Fowler's Solution by one-half (to 4 cc.) and continue therapy. If symptoms persist, eliminate it altogether and continue therapy. The same reasoning applies to iodide reactions of major consequence (persistent enlarged glands, acneiform lesions or fungating lesions). Dosage routine is the same as for the average adult case. (See Table 12).

TABLE 12
SPECIAL CASES (ADULTS)

	Fowler's Solution	Tr. Digitalis	Phenobarbital	KI	Water
Severe Arsenical Reaction	None to 4cc.	4cc.	12grs.	165grs.	qs. 180cc.
Severe Iodide Reaction	8cc.	4cc.	12grs.	None to 80grs.	qs 180cc.
Severe Phenobarbital Reaction	8cc.	4cc.	None to 6grs.	165grs.	qs 180cc.
Senile, Cardiac and Emphysematous	6 to 7cc.	4 to 6cc.	9grs.	120 to 140grs.	qs 180cc.

In those individuals who present a significant history of aspirin sensitivity, the red coloring and saccharin should be omitted from the basic liquid medication. This coloring contains 91 per cent pure coal tar dye.

Further revision or interpolation may be made as dictated by individual variations or in the interest of extemporaneous expediency. It should be remembered, however, that departure from proven principles is done at some risk to the patient's welfare and to the physician's prestige.

SPECIFIC SUPPLIES UTILIZED

In order to answer the many urgent requests for "specific" information on supplies used, and origins, the following list is provided. At the same time the author wishes to emphasize that he has no personal interest in any company listed or in any product named. This information is purely for practical utilization by interested physicians. It is quite likely that other similar products could be substituted after careful consideration of possible incompatibilities.

	COMPANY
1. Solution Potassium Arsenite (No. 35) N. F. (Fowler's Solution—10 gms. arsenic trioxide per liter)	Lilly
2. Tincture Digitalis U.S.P. (No. 10) (1 cc. represents 1 U.S.P. unit)	Parke, Davis
3. Potassium iodide (CT 119) 5 gr. tab. (Special Orders only)	Parke, Davis
4. Benylin Expectorant (No. Codeine)	Parke, Davis
5. Elixir Phenobarbital U.S.P. (1.83 gr. per oz.)	Abbott
6. Sodium Phenobarbital (CT 711) 1½-gr. tab. (Disc)	Parke, Davis
7. Phenobarbital Sodium (Soluble 1 gr.) tab. (No. 3181)	Abbott
8. Phenobarbital tablets (1* gr.) (No. 3033)	Abbott
9. Calcium Preparations	
Calscorbate Tabs (No. 745)	Cole Chemical
Dicalossa Tabs (No. 4)	G. W. Carnrick
Neocalglucon	Sandoz
Calmulsion	Upjohn
10. Bile Salts Tablets	
Doxychol-K (Ketocholanic Acids—3 gr. (Desoxycholic Acid—1 gr.	Breon
Decholin (Dehydrocholic Acid 3 3/4 gr.)	Ames
Ketochol Tablets	Searle
Colopo Tablets (Cascara Sagrada 2 gr.) (Bile Extract—1 gr.)	G. W. Carnrick
11. Saccharin Soluble (1 gr. tablet)	Upjohn
12. Red Coloring (F D & C Red No. 2) "Amaranth"	National Aniline Division Allied Chemical & Dye Corp.
13. Orthoxine and Aminophylline Capsules (Orthoxine 50 mg.) (Aminophylline 100 mg.)	Upjohn
14. To a lesser extent the following are used—Tedral, Dainite, Cardalin, Amesec, Amodrine, etc.	
15. Antihistamines—if and when indicated.	
17. Narcotics—None whatsoever.	

The matter of water used as a diluent may be important also. Distilled water has not been fully satisfactory. Chlorinated water from city supply sources seems to add to the incompatibility probconstitute a real problem. We have been fortunate lems and a suitable water for other physicians may in having artesian water of unusual characteristics and it has been used through the years as a diluent for the basic drugs. (See Table 13).

ANALYSIS OF ARTESIAN WATER FROM 1026 FOOT DEPTH—9-7-54

(Miss. State Chemical Lab)	Parts per Million
Totals Solids	230.00
Loss on Ignition	20.00
Carbonate Radicle, CO_3	12.00
Bicarbonate Radicle, HCO_3	163.48
Chloride Radicle, CL	15.00
Ammonia Nitrogen	0.00
Albuminoid Nitrogen	0.00
Nitrite Nitrogen	0.00
Nitrate Nitrogen	Trace
Free Carbon Dioxide, CO^2	0.00
Total Hardness as $CaCO_3$	0.00
pH	8.9
Bacterial count (County Health Dept.)	Negative

FOLLOW-UP PROCEDURES

After one week or more under personal observation, patient is given an instruction sheet on general principles to be followed after his return home. All questions are answered relative to specific procedures, dosages, flexibility of dosage, control of recurrent infections, and psychosomatic problems. Since many patients live at great distances it is imperative to establish a workable communication system. A specific report of progress is required every one or two months. This includes a statement on actual daily intake of medicine (particularly that which contains potassium arsenite), allergic manifestations noted, appearance of skin, edema, weight, infections, nervous tension, sleep pattern, and general progress since institution of treatment.

Visits to, and examination by, personal physician are encouraged and his cooperation is sought. When such physician is designated, a report of findings, treatment instituted, and recommendations is sent to him and frank discussion of the case is encouraged.

The patient is encouraged to come back for recheck at regular intervals and those within a radius of 200 miles often do this but others, who live at greater distances may find it impossible to do so.

The period of supervision is for a minimum of two years; longer if necessary. The arsenic containing red liquid is furnished patient throughout entire period of supervision provided necessary information is supplied by the patient or by his personal physician. Other medication is supplied by prescription through normal drug channels after initial six-week supply is exhausted.

Appropriate modification of medicine is made as indicated by general progress report. With the passage of time and with conscientious attention to detail it takes very little medication to maintain the patient in normal balance.

Periods of stress or crisis require special attention by all concerned. This refers primarily to infection and to emotional upset. Antibiotics are to be given for the former and reassurance, or other suitable psychotherapy, for the latter.

Strict accuracy of dosage is essential. Slight variations above or below proper dosages may lead to drug reactions in the one instance or recurrence of disease symptoms in the other. The "red liquid" must be continued under all circumstances but if a reaction suggestive of an arsenical reaction is noted it must be given serious meditation and all factors considered.

The patient should be told that there may be several mild attacks after return home, particularly with colds, or change in weather, or emotional upset. This precaution may prevent a panic reaction on the part of the patient.

Emphasis must be placed on need for flexibility in dosage of basic medication after the first six months, that is, three doses daily in severe attacks, twice daily in mild attacks and once daily even when feeling quite well. A detailed review of exact treatment mechanism is necessary from time to time.

PRECAUTIONS

1. Since the dosage of medicine necessary to provide relief may occasionally cause toxicity, it is imperative to maintain a close patient-physician relationship. Monthly reports of progress are desirable and frequent check-up by personal physician should be encouraged.

2. Poor dietary habits, malnutrition and vitamin deficiencies must be corrected as a matter of common sense. In some cases salt restriction is necessary. If there is indication of endocrine dysfunction it must be corrected. Normal daily bowel action is necessary to avoid attack or aggravation of a continuing attack.

3. The average patient should be told about the arsenical content in order that he may appreciate the necessity for cooperation. When arsenical reactions occur despite reasonable care, it has been my policy to discuss the matter frankly with the patient and allow him to decide whether the relief obtained from treatment justified continuation of it.

Some patients are the breadwinners for the family and state that they prefer to breathe and to work above all other considerations. It should be clearly understood that many of these patients have gone the rounds and that they have tried *everything* previously.

4. Medication containing arsenic is not to be provided patient unless required reports are furnished him or by his personal physician. An attempt should be made to get the patient in for personal consultation at regular intervals despite distances involved.

5. It is dangerous to assume that intractable cases can be handled best by routine ponderous procedures. The physician must become introspective and detach himself from habit. In reviewing all factors without bias in a given difficult case he may realize that certain trends must be reversed and new, and. possibly simpler, methods may produce good results.

THEORETICAL CONSIDERATIONS

1. Although the exact mechanism of relief obtained in this procedure is unknown, it is my personal opinion that a general type of desensitization is obtained, possibly by the depressive action of the arsenical component on the reticulo-endothelial system with decreased antibody formation, or an altered antigen-antibody complex.

2. It is believed that there is an electrolyte imbalance in allergic patients consisting of depletion of potassium and calcium and an excess of sodium. This imbalance is possibly corrected by the use of the potassium ion found in potassium iodide and in solution of potassium arsenite. Although the mechanism of calcium imbalance is imperfectly understood, we do supply calcium in most cases as a routine procedure, even though the food taken may contain what is normally considered an adequate amount of calcium, *per se*. In those cases where edema is present or there is a tendency to fluid retention, every effort is made to restrict sodium intake due to the fact that there is an apparent excess of the sodium ion. Under adequate treatment these electrolytes are restored to normal relationship.

3. In my opinion most patients in the collagen disease or "hypersensitivity group" have a considerable psychosomatic problem. Oftentimes the patient's fears have been magnified and distorted by the use of stimulating and exhausting relief drugs, and he goes into a vicious cycle of apprehension, asthma, fear, more medicine, more nervous tension, and more asthma. In order to break up this cycle, simple reassurance is most essential. In my opinion, psycho-analysis or the more complicated psychiatric procedures are unnecessary and whatever we call this simple form of psychotherapy (reassurance, group therapy, the art of the practice of medicine, or simple common sense) it is of the utmost importance to the patient and to his ultimate recovery. It is my policy to encourage group therapy by allowing the old and new patients to mingle in the reception room. The oldsters are reminded of their previous suffering and the new ones are encouraged by the results shown by the older group. Each group cooperates better as a result. We are correct in assuming that "the only thing to fear is fear itself."

4. Powerful drugs which give only short periods of relief should be avoided when possible since they put the patient on the "merry-go-round" and accomplish nothing. The patient must understand cause and effect and must be given insight into the psychosomatic hypothesis. He should be given the same understanding of his case that is extended to a diabetic patient.

5. The treatment effort must be extended over a period of years and the impetus, or initiative, must be from the treating physician. If this is not done there is a tendency to relapse into former bad habits.

6. There is a remote possibility that an unidentified substance is formed in the incompatible mixture which is responsible for the marked therapeutic effect. This hypothesis justified investigation by competent pharmaceutical chemists.

7. One of the most important items to the patient is the lifting of restrictions. He is told to eat what he wishes within moderation; to have pets if he wishes them; to live a normal life in a house that has not been stripped of rugs, draperies, overstuffed furniture and other articles compatible with normal family life; to live where he chooses and to do work which he is most qualified to do. The patient is grateful for this consideration of his welfare and responds zealously to the task of making these things possible.

ADVANTAGES

1. Symptom relief within four days is the rule in approximately 90 per cent of those treated. At this time broncho-dilator drugs such as epinephrine, aminophylline, ephedrine and nebulizers in general may be discontinued except for occasional emergency use.

2. By leaving off these stimulating and exhausting drugs, patients can avoid the increased nervous tension and tachycardia that attends their use. Blood pressures fall to normal or subnormal levels.

The appetite returns to normal and sleep without sedation is the rule. Broncho-spasms disappear and the cough becomes looser and more productive and gradually disappears.

3. Within two weeks approximately 85 per cent of these previously disabled patients are enabled to return to gainful occupations. Their self-confidence returns and they become useful members of society once more instead of being burdens to their families.

4. Treatment can be safely continued for a period of years if necessary at the required maintenance level at small expense to the patient.

5. The use of ACTH and/or Cortisone can be avoided in 95 per cent of these cases.

DISADVANTAGES OF TREATMENT

1. We are dealing with a patient of altered reactivity and for this reason we may get more drug reactions than in the normal patient. Sometimes these reactions are erroneously reported as "poisoning." These same reactions occur in other forms of treatment also.

2. The control of the patient after his return home (when home is at a great distance) is often poor, and this disadvantage is further increased by ignorance and apprehension on the part of the patient.

3. Physician cooperation may be quite poor and this refers not only to the treating physician, but the personal physician back home. Unfortunately, all physicians are not equally meticulous and conscientious in looking after the daily, weekly, monthly and yearly needs of the allergic patient. There comes a time when physicians, like other people, want to get away from it all and don't stay on the job as closely as should be done if the best possible results are to be obtained.

4. With the return of good health, patient may become lax in following instructions and may stop taking his medicine after a period of a few weeks or a few months, despite advice to continue for a minimum period of two years. Lapse in treatment often leads to a return of the allergic manifestations and the patient immediately assumes that the treatment is no good, or that the physician has been over-rated.

5. Patients often become discouraged if an immediate miracle does not occur. We have noted many cases requiring two or three months of conscientious medication before considerable improvement has been noted.

6. There is, of course, a grave danger from unreported arsenical reactions. The patient considers minor and non-painful lesions as unimportant and fails to tell the treating physician of the situation. To a lesser extent reactions from iodides are also to be included in this category.

SUMMARY

1. A method of long-range treatment of allergic conditions, primarily asthma, has been presented. A survey of 1128 cases has been made and only 5 per cent have failed to show improvement. The over-all response to treatment has been excellent despite the fact that 80 per cent of these cases had been treated unsuccessfully elsewhere prior to the institution of this treatment.

2. Simplicity has been the keynote. There have been few restrictions on these patients and they have been restored to a comparatively normal life.

3. Intelligent application of principles described can preclude dangerous drug reactions.

4. Follow-up care is imperative and the physician must be diligent and must evaluate progress at frequent intervals. This requires extra hours of checking and re-checking.

5. More personal attention must be given to psychosomatic problems and to bringing the patient to a realization of the positive good he can do in intelligent self-treatment and in the resolution of his personal problems. Patient must be considered as a complete entity as well as an allergic problem.

6. It is time to back up, stand off and take a long thoughtful look at our management of the allergic patient. He does not fall into the pattern of the run-of-the-mill patient because he is more intelligent, more aggressive, and more apprehensive. For these reasons the broad scope of management must be altered. Time and personal attention must be given, and rapprochement reached. Less emphasis must be placed on laboratory procedures and more must be devoted to personal observation and to the study of the patient as an entire human being.

7. There are thousands of desperately ill asthmatic patients who are in need of help and cannot afford the travel expense to Mississippi. Friends, relatives and physicians have repeatedly asked the author for help for these patients who have not responded to other forms of therapy. It is suggested that these personal physicians institute treatment as outlined.

8. In order to obtain comparable results, other physicians will find it necessary to follow exactly the recommendations and procedures outlined in this paper. Changes or substitutions should not be attempted until a sufficient volume of work has been done to justify deviation.

DISCUSSION

Dr. Geo. W. Owen (Jackson)—Some weeks ago I agreed to discuss Dr. Gay's paper at this meeting. After reading his paper, it was realized I never should have agreed to the discussion, because I have never treated allergic conditions in the manner described. Consequently, I do not feel competent to pass upon whether the plan of therapy outlined is good or bad.

My conceptions of etiology and therapy, as an allergist, vary considerably from those of Dr. Gay. This statement is being made on the basis of the paper presented, and from the knowledge I have been able to obtain regarding his plan of therapy. I hope, however, as my discussion proceeds and these variances of opinion become more apparent, that neither he nor you will feel that I mean to criticize honest and earnest efforts to assist the allergic individual. In attempting to discuss his paper, I shall try to be both charitable and factual. I do believe Dr. Gay is making a sincere and honest effort to present to the profession what he feels is a plan of therapy which will prove helpful in allergic diseases. He evidently feels that most any physician can successfully use his plan of therapy.

If I chose to be argumentative or critical, I could begin by disagreeing with Dr. Gay almost immediately from the start of his presentation. For example, take the matter of etiology. Heredity, in my mind, is the predisposing factor to the development of the allergic state, and siblings of allergic parents manifest allergic symptoms that rather closely follow the Mendelian law. It has been tritely put by someone that "If you wish to avoid the allergic conditions, it would be well to be careful in the choice of your grandparents." Again, if I choose to be argumentative, we might use his remarks with regard to intrinsic and extrinsic asthma. Evidently the two terms mean something very different to me from what they do to Dr. Gay. We can briefly pass this matter, however, by simply saying that to me intrinsic asthma does not involve an antigen-antibody reaction at all. To me, intrinsic asthma is initiated by such conditions as emphysema, bronchiectasis, tuberculosis, malignancies, etc., or, in other words, actual pathology of the respiratory tract.

At this point, please permit me to give you my brief conception of the psychic, somatic and emotional problems that enter into the allergic conditions. So far as I am aware, this subject was never mentioned until eight or ten years ago, when Dr. Harold Abramson of New York City, and one of his colleagues began talking about the subject. The matter was mentioned in the lay literature, then began to appear in the professional journals, and there was so much talk and furore with regard to this particular subject, that both the lay and the professional people may have been led to believe all allergic conditions result from psychosomatic, or emtional disturbance. Two years ago this spring, at the meeting of the American College of Allergists in Chicago, Dr. Abramson discussed this subject. He made, what was to me, a very significant remark. I cannot quote him exactly, but his words were much to this effect: He said, and I quote as nearly as I can, "We recognize that 85 per cent of allergic conditions can be adequately and successfully handled by the accepted plans of allergic management. When we started talking about this subject, we were referring to the other 15 per cent." Twenty-odd years ago when I started in the allergic field, much reference was made to the disturbance or imbalance of the sympathetic and parasympathetic nervous systems. I believe this is still true, and that anything which can be done to help stabilize the sympathetic nervous system aids in the treatment of allergic conditions. I cannot, for the life of me, see how an infant six weeks or three months of age can develop a severe allergic dermatitis because of some psychosomatic or emotional state. We all know that in such cases the removal of eggs, or wheat, or milk, or feathers, will cure that infant. In other words, the infant is allergic or sensitive to some certain item, or group of items, and the removal of these will bring a cure. It is admitted that stress or strain of one type or another, can trigger the onset of an allergic manifestation, but I do not see how this would be possible in an individual who is not already hypersensitive. All chronic diseases, in my opinion, produce some psychic trauma. All of us, I am sure, recognize that re-assurance or, if you choose, psychotherapy in whatever form, will prove helpful to that individual. Our entire population at the present time is subjected to stress and strain, but only about 10 per cent of the population manifest allergic symptoms.

Dr. Gay states that of the 1128 cases under discussion, 80 per cent had been treated unsuccessfully elsewhere. This statement alone would seem to be quite an indictment, or even a condemnation of the accepted plans of therapy for the treatment of allergic diseases. There are many reasons why treatment may not prove successful in 1128 cases. As a consultant at the Veterans Administration Hospital in Jackson, I can point out cases who do not wish to get well, or even improve, for fear that their compensation will be reduced. Many patients fail to cooperate; many fail to persist in treatment, etc.

In looking over his figures, Dr. Gay states that his over-all response reveals 80 per cent who were free of symptoms for five years or more, or were greatly improved. Frankly, I salute any plan of therapy which can accomplish results of this proportion. Any plan of treatment of allergic diseases which yields 80 per cent favorable response is worthy of consideration, regardless of the means employed in obtaining this response.

The number of deaths mentioned does not seem to be excessive. I think it is rather interesting, however, that of the 31 who died, five showed evidence of effect from arsenic.

I think it only natural to expect the best results to occur in the younger age group. Likewise, those who started treatment shortly after the onset of symptoms, would probably respond more readily than the longstanding case.

Dr. Gay has well outlined his plan of therapy, and I am sure that each of us welcomes this detailed report of therapeutic procedure. He has outlined procedure, follow-up, precautions, theoretical considerations advantages and disadvantages of this entire plan of therapy. His results would appear to be good and as long as he can relieve allergic symptoms with his plan of therapy, I can see no logical reason why he should not continue to use it. I do not care at this time to become involved in the matter of drug intolerance, and what I believe has been the oft-repeated accusation of arsenical poisoning. To me, the question still remains unanswered as to why, or how, the plan of therapy gives results.

I stated, more or less by way of prefix, that I have never used this plan of treatment. I do not know that I shall ever attempt to use it in its entirety. Why? The answer is simple. I do not see the rationale of it. I see no logical reason why the drugs used should cure a case of asthma, or any other allergic manifestation. Please do not misunderstand me. I do not mean to be critical. I think the reason the profession, as a whole, has not accepted this plan is because they cannot reason in their own minds that these drugs will cure asthma. The psychotherapeutic side of the treatment appears to be good, and I believe is probably worth as much, or even more, than the actual drugs being used. Here is a man who believes thoroughly, from his own experience, that what he does will help the patient. He believes this so deeply, he imparts this feeling to the patient. Soon the patient himself begins to believe, and psychotherapy has done its job. This must be the case, because I have had other allergists tell me they have tried the plan unsuccessfully. I can see no other reason why the plan would yield results.

Arsenicals, iodides, calcium, and the other drugs in question have been used for years. They were used by our grandfathers. I am told they are still used fairly extensively by the British and French. These drugs unquestionably have their place in the treatment of asthma. I do not suppose any man treating allergic diseases has not used them to some extent, and will not continue to do so. I doubt that many will use them to the exclusion of the more recent, acceptable, and conventional plans of therapy.

Briefly, my criticism of the plan outlined would be about as follows:

No. 1. While the etiologic factors such as inhalants and ingestants are admitted, nothing is done to determine what they are.

No. 2. Apparently no effort is made to exclude any of the inhalants or ingestants.

No. 3. No effort is made to desensitize to any of them.

No. 4. The patients have become so indoctrinated with the plan outlined, that those who are actually sensitive, for example, to inhalants, are made to feel that desensitization is futile or unnecessary.

I have not broken down my results statistically as an allergist. However, I believe my results, with what is now a fairly well accepted plan of allergic management, will equal if not exceed, the statistics presented by Dr. Gay.

It is my hope that some day Dr. Gay may combine his present plan with accepted allergic principles, and approach 100 per cent results. Maybe I should also give more serious consideration to his procedure.

Every good desire is a promise of what can be.

Everything comes to him who waits — if he works while he waits.

A New Approach to the Treatment of Asthmatic Bronchitis in Infants

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RESULTS heretofore obtained in treatment of asthmatic bronchitis have not been entirely satisfactory, especially in infants. Bronchospasm usually responds poorly to the administration of sympathomimetic drugs[1],[3]. Drowsiness, nausea, and vomiting are drawbacks to the use of ephedrine in children. Severe pallor, nausea, and shock-like symptoms are likely to accompany an overdose of epinephrine[1]. Aminophylline may furnish some relief in asthmatic bronchitis but its use is attended by serious dangers, and must occasionally be discontinued because of thickening of secretions[2],[5]. Atropine has the same disadvantage and is distinctly contraindicated because of its drying effects[2].

Adrenocorticotrophin has been shown to reduce exudate, edema, and vascularity of the bronchiolar wall. However, it does not seem to affect the duration of symptoms nor to have any greater effect on bronchiolar obstruction than do other therapeutic measures[6]. Results with antibiotics have been variable, perhaps largely because of mixed infections[1],[2],[5],[7],[9].

With these disadvantages in mind, a new approach to the problem of asthmatic bronchitis has been attempted. A synthetic anticholinergic agent, diphemanil methylsulfate*, both orally and by injection, has given promising results in asthma[10]. In the experience reported here, it appears to offer definite advantages over many of the drugs previously used in the treatment of asthmatic bronchitis.

MATERIALS

The study group consisted of 88 children with asthmatic bronchitis; seventy-one were infants of two to thirteen months—emphasis here being focused on infants where results of previous treatment have been equivocal. The remaining seventeen were children between the ages of two to seven years. Asthmatic bronchitis in some of these patients may have been an allergic manifestation as some had other common allergic problems. Each had ample evidence of respiratory infection. All had deep coughs that had persisted from a few days to as long as a month. Coughing was sometimes continuous and a deterrent to sleep. Wheezing had been present in most patients for several days and in a few for a month or more. Upon auscultation, expiratory wheezes were identical to those heard in true asthma.

In those with allergic types of asthmatic bronchitis, the temperature was not elevated.

Treatment prior to this study of the use of diphemanil methylsulfate had consisted of antibiotics; seven patients in this group had received penicillin or streptomycin without significant benefit before anticholinergic therapy was initiated. Infections were gradually controlled, but children with acute bronchitis and wheezing need prompt relief. Furthermore, there was a tendency for the condition to recur within two or three weeks. Antibiotics alone do not furnish adequate therapy, though they may be useful for control of infections used along with bronchodilators. Thus penicillin, streptomycin, tetracycline, chlortetracycline, or terramycin were frequently used with diphemanil methylsulfate.

METHODS

Four types of treatment were employed. Diphemanil methylsulfate* in tablet form was given seventeen children who were older and one four-month-old infant. The dosages chosen at intervals of six to eight hours were as follows:

Age	*Dose*	
	Oral	*I. M.*
0-5 Mo.	10 Mg.	4 Mg.
6-12 Mo.	15 Mg.	5 Mg.
13 Mo.-4 yrs.	25 Mg.	
5 yr.-10 yrs.	50 Mg.	

Each 100 mg. tablet was crushed and an appropriate amount of powder suspended in Karo syrup, Coca-cola, or orange juice to disguise the somewhat bitter taste.

Diphemanil methylsulfate injection, containing 25 mg. of the agent in each millimeter of aqueous solution, was used for 28 infants. No child receiving injections was older than 13 months.

Thirty-two infants received both injections and tablets by mouth. By this means the action of the drug could be sustained over a longer period.

The fourth group of ten infants received an antihistamine, chlorprophenpyridamine maleate**, in addition to diphemanil methylsulfate injection.

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*Trade name Prantal(R) supplied by G. Kenneth Hawkins, M.D., Division of Clinical Research, Schering Corporation, Bloomfield, New Jersey.

**Chlor-Trimeton (R) Maleate, manufactured by Schering Corporation, Bloomfield, New Jersey.

RESULTS OF TREATMENT WITH DIPHEMANIL METHYLSULFATE

			COUGH					*WHEEZING*				
Therapy	*No. Pts.*	*Age*	*Response No. Pts.*		15*mg.*	25*mg.*	50*mg.*	*Response No. Pts.*		15*mg.*	25*mg.*	50*mg.*
Diphemanil Methylsulfate Oral	18	2 - 7 yrs.	Relieved:	7	4	3		Relieved:	10	4	4	2
			Improved:	7	2		5	Improved:	5	2		3
			None	4		3	1	None:	3		2	1
					1 *Inj.*	2 *Inj.*	3 *Inj.*			1 *Inj.*	2 *Inj.*	3 *Inj.*
Diphemanil Methylsulfate Injection	28*	2½-13 mos.	Relieved:	11	2	8	1	Relieved:	20	6	11	3
			Improved:	15	5	8	2	Improved:	7	1	6	
			None:	1		1		None:	1		1	
Diphemanil Methylsulfate Injection and Oral	32	2 -12 mos.	Relieved:	15	6	7	2	Relieved:	23	8	13	2
			Improved:	17	9	8		Improved:	9	7	2	
Diphemanil Methylsulfate Injection and Chloroprophenpyridamine maleate oral	10*	3 -12 mos.	Relieved:	5	2	2	1	Relieved:	9	4	3	2
			Improved:	4	1	2	1	Improved:	1		1	

*1 patient had no cough

The usual dose of the former orally was 1 to 2 mg., in syrup or crushed tablet form. Antihistamines have given some good results in infants and young children with asthma, especially when a specific sensitivity has been established[11]. Therefore, it was hoped that the response in asthmatic bronchitis could be improved by combined therapy.

RESULTS

The results of treatment were evaluated in terms of improvement of relief of cough and wheezing. The accompanying table shows the numbers of patients with each response at the different oral dosage levels and after one, two, or three injections.

Oral diphemanil methylsulfate. No dramatic response followed the oral administration of diphemanil methylsulfate in 18 young children with asthmatic bronchitis. After two to four days' treatment, six were relieved of cough and nine of wheezing. Ten days' treatment was required in one patient before both symptoms disappeared. Scattered ronchi were heard the second or third treatment day. Coughing diminished in one to four days in 7 patients and wheezing in 5. In 4 and 3 patients, respectively, cough and wheezing were unaffected by this therapy. In a patient unresponsive to 50 mg. every six hours for two days, cough and wheezing were cleared with epinephrine.

InJectible diphemanil methylsulfate. In injectible solution, diphemanil methylsulfate had a more rapid effect on wheezing and the over-all results with it were better than with the drug orally. Seven patients received one injection, 18 patients received two injections on succeeding days, and three patients received three injections —one initially, and one on the second and fourth treatment days. Wheezing diminished rapidly following the first injection in many of the 28 infants who received 2 to 5 mg. initially. Within 30 minutes, wheezing was reduced by at least half in 26 of this group; it was reduced by 75 per cent or more in 14. One patient, however, had no relief after an hour. The same rapid relief of wheezing followed the second and third injections.

In this group, 20 patients were relieved of the wheezing and 11 of cough. In 15 cough, and in 7 wheezing diminished but did not disappear. In one patient who had had a severe cough for about five days responded initially to each of two injections in that wheezing cleared appreciably. However, he grew worse during treatment and ultimately had no benefit.

The time required for wheezing to clear in those patients completely relieved was usually one to three days, but in one patient five days were required and in another with tonsillitis, seven days. The time interval for relief of cough was similar.

Slight to marked flushing usually was observed 10 to 15 minutes following an injection. Because this effect occurred rather consistently with injection therapy, the parents were told beforehand of its likelihood in order to avoid alarming them.

Diphemanil methylsulfate seemed to exert its best effect during the three or four hours following injection. Bronchospasm was relieved and secretion diminished without apparent drying effects. No adverse effects were encountered[12].

Diphemanil methylsulfate (injection and oral). In 32 infants, diphemanil methylsulfate orally was prescribed every six to eight hours commencing the day after an initial injection. The action of the drug seemed thus to be sustained. Fifteen of this group of patients received a second injection of 4 to 5 mg. on the second treatment day, and 2 a third injection on the third day of therapy.

Wheezing in these patients responded rapidly to diphemanil methylsulfate by injection. Wheezing was reduced by at least 50 per cent within 30 minutes in 26 patients following the initial injection of the drug.

A slightly better over-all response was obtained in patients treated in this manner. Coughing ceased in 15 patients and wheezing 23. These symptoms were reduced in 17 and 9 patients respectively†.

In this therapy, too, scattered ronchi were heard on the second treatment day. Slight to marked flushing occurred three to fifteen minutes following an injection in almost all of the patients.

DIPHEMANIL METHYLSULFATE INJECTION WITH CHLORPROPHENPYRIDAMINE MALEATE ORALLY. The effect of combined anticholinergic and antihistaminic therapy was tested in 10 infants. Four received one injection of 3 to 4 mg. diphemanil methylsulfate, 4 patients two injections, and 2 patients three injections together with 1 or 2 mg. chlorprophenpyridamine maleate three times daily. A response became apparent in one to four days. One patient who had wheezed for seven months required treatment for seven days.

One infant had no cough. Among the other nine cough was relieved in 5 patients and partially relieved in four. Wheezing cleared in all except one patient, who was, however, improved after four days.

DISCUSSION

The use of an anticholinergic agent to combat bronchospasm in asthmatic bronchitis is based upon the hypothesis that characteristic respiratory difficulty may result in part from imbalance autonomic with a preponderance of vagal impulses[13,14]. Such a disturbance of the normal balance between the sympathetic nervous system, which acts to decrease secretion and relax musculature, and the parasympathetic, which increases muscle tone and glandular secretion, could result in bronchial edema, bronchial muscular constriction, and wheezing. Among observations supporting this thesis is the finding of a mean acetylcholine level in the serum of patients with asthma significantly greater than that for normal healthy individuals[15].

Despite the ability of atropine and belladonna alkaloids to combat effects of injected acetylbetamethylcholine, and of atropine experimentally to overcome smooth muscle spasm, these drugs have limited usefulness clinically in counteracting attacks of asthma[13,14,16]. Atropine, scopolamine, and Bellafoline are undesirable in asthma because of their drying effects[1,17,19]. Belladonna alkaloids alone are ineffective in asthma[14] but good results have been reported with a belladonna alkaloid combined with ephedrine and an antihistamine[20]. The most striking effect of this combination occurred in patients with chronic asthma and asthmatic bronchitis in whom inspissated mucus, wheezing, and cough were the cardinal symptoms.

Spasm of the bronchial musculature plays a part in asthmatic bronchitis. Therefore, the parasympathetic nerve supply to the muscles which causes bronchial constriction, should be considered in choosing suitable therapy. In this acute condition, a substance that “antagonizes the action of the parasympathetic system should produce relaxation.”[21]

There is some confusion among clinicians over the definition of “asthmatic bronchitis.” Asthmatic bronchitis refers to attacks of wheezing and dyspnea that may develop after a chronic infection of the bronchi[1,5,22,25]. Usually there is evidence of a respiratory infection and cough is a characteristic feature. Attacks of asthmatic bronchitis, while sometimes acute, usually occur gradually as a complication of an existing bronchitis. Fever is usual and may be high. The terms bronchitis, capillary bronchitis, bronchiolitis, emphysematous bronchitis, and bronchopneumonia have been used synonymously, although some of these are certainly separate entities.

Asthmatic bronchitis may probably be produced by any agent capable of causing any inflammatory reaction in the bronchioles. In Glaser’s[3] opinion, “. . . obstructive emphysema with expiratory wheezing may occur solely as a result of edema secondary to infection or even other causes, as irritating inhalants.” A question always exists as to whether an infectious process leads mechanically to partial obstruction of the bronchial lumen or whether an infection predisposes to bacterial hypersensitivity on the basis of which bronchospasm or asthma develops.

That asthmatic bronchitis may be allergic in origin is suggested by the fact that it is sometimes followed by bronchial asthma as a child grows older. Rackemann and Edwards[25] use the term asthmatic bronchitis "to describe the situation in which the patient is sensitive (to extrinsic factors) but has attacks of asthma only when new colds lower the threshold to make a slight allergy effective. When the foreign substance is removed the patient continues to have head colds, but asthma no longer occurs with them." They point out that recovery, without changes in environment or desensitization, of some of their patients, in whom no allergy was demonstrated, necessitates a reconsideration of the term "asthmatic bronchitis" and suggests that colds themselves and alone may cause asthma.

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†Since the completion of this study, an additional 250 patients under the age of one year have been treated with combined oral and injection therapy with good results.

The treatment of asthmatic bronchitis consists of the relief of bronchospasm, reduction of exudates, control of infection, adequate oxygenation, and general supportive measures. The use of diphemanil methylsulfate to decrease bronchospasm and exudates appears to offer an effective approach to treatment of "asthmatic bronchitis." Its use is indicated not only by the rationale stated above for the use of anticholinergic agents generally but also by results obtained with diphemanil methylsulfate in clinically typical bronchial asthma. Vickers[26] relieved 20 patients with acute asthmatic attacks in two to five minutes by injecting 10 to 15 mg. of this drug intramuscularly. Two patients in mild status asthmaticus had transient benefit while three patients in severe asthmaticus were not improved. Three-fourths of 76 asthmatic patients treated with diphemanil methylsulfate orally by Seidmon and Schaffer were benefited[27].

Studies on vital capacity and on maximum breathing capacity of normal and asthmatic subjects have demonstrated a bronchodilating action of diphemanil methylsulfate[10]. At a dose level of 25 mg. intramuscularly, it equaled in effectiveness 500 mg. aminophylline intravenously or 0.25 mg. epinephrine intramuscularly. This dose was inferior to 0.5 mg. epinephrine but superior to 50 mg. ephedrine intramuscularly.

SUMMARY

Anticholinergic therapy with diphemanil methylsulfate was investigated in 88 children, 71 of these being infants with asthmatic bronchitis. Antibiotics were administered concomitantly for the control of infection. The results indicate that further testing of this drug would be warranted.

Diphemanil methylsulfate reduced or relieved cough and wheezing at variable ratio in 14 of 18 children receiving it orally. By injection, the drug more rapidly diminished wheezing, a 50 to 75 per cent reduction usually occurring promptly. Twenty-eight infants received diphemanil methylsulfate by injection only and 32 received the drug both by injection and by mouth. The results in the two groups were similar, effects being more prolonged for the latter. Cough was relieved in 40 per cent and improved in 53 per cent of patients in these two groups. Wheezing disappeared from 72 per cent and diminished in 25 per cent. Diphemanil methylsulfate by injection combined with chlorprophenpyridamine maleate orally completely relieved cough and wheezing in a slightly larger percentages of patients.

Diphemanil methylsulfate had no adverse effects on behavior or actions of any children treated. Secretions were apparently reduced without excessive dryness of bronchial mucosae. Diphemanil methylsulfate caused no side effects other than slight to marked flushing 10 to 15 minutes following an injection.

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Nursing Education – Where Do We Go from Here?

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Few programs of professional education are changing as rapidly as that for the preparation of professional nurses. State systems of higher education throughout the nation are seeking solutions to the problems of responsibility for providing educational opportunities for nurses, and of the proper organization of educational programs. In Mississippi the attention of the Board of Trustees of State Institutions of Higher Learning was first directed to the idea of responsibility in this field by Dr. W. T. Sanger of Virginia Medical College in his part of the report of the 1945 *Mississippi Study of Higher Education.* Among his recommendations at that time were 1) that the Board of Trustees consider its possible responsibility in assisting in the establishment of standards and controls of nurse education; 2) that the Board consider establishing a model school of nursing; 3) that separation of the accrediting and registration functions of the State Board of Nurse Examiners be studied.

Later, legislation was enacted providing for a Commission on Hospital Care and directing the Board of Trustees to cooperate with the Commission in the area of nurse training.

One result of the activities of the Commission on Hospital Care was a survey of nursing education in Mississippi completed by Miss Ruth Gillan in 1948. This report emphasized again the place of the state board for higher education in the field of nurse education. Finally, legislation was enacted providing certain funds for the encouragement of nurse education and fixing definite responsibilities upon the Board of Trustees.

Previous to these developments, nursing education had not been generally thought to be in the field of higher education. In the meantime, however, Board members and others have studied the various aspects of the problem and have taken official steps in accepting a part of the responsibility.

This does not mean that any agency can replace the hospitals and I do not see any way for them to escape it. If the hospitals do not provide trained nurses they will be forced to train other workers to take their places, and this, many persons believe, will result in dangerously inferior nursing service. It is the hope of the Board that policies may be established cooperatively which will involve more hospitals in nurse education than are active at the present time.

As orientation for our consideration of future developments in the preparation of nurses, let us review the findings and recommendations of these previously mentioned studies. In 1940 Mississippi ranked forty-eighth among the states in trained nurses and student nurses. If the white population only were considered, however, the ranking was thirty-seventh. The number of schools of nursing in 1943 was 36, however, Dr. Sanger stated that only five of these possessed sufficient enrollment and clinical material for sound education at reasonable cost. He recommended that the remaining schools give thought to the possibility of training nurses' aides or practical nurses.

He recommended that the number of schools be reduced, that a practical nurse program be instituted, that programs of nurse education for Negro nurses be established and that the Board of Trustees enter the field through one or more of its institutions.

In 1947 it was learned that the ratio of nurses to total population in Mississippi was 1 to 758 white while in the nation at large it was 1 to 300.

A careful survey of hospital practices was made in 1947 by a committee under the auspices of the Commission on Hospital Care, and estimates were made as to the existing deficit in nurses together with the projected future need as a result of the hospital building program then beginning. At that time there were a total of 1380 graduate nurses employed in Mississippi, but the need was calculated to be 2838. Projected to 1955 this need was estimated to be 3697. The record for 1953 indicated that 2203 nurses were reported to be in Mississippi, leaving a deficit of approximately 1500 nurses. Taking specific categories of types of nursing, the figures for 1953 compared to needs predicted are:

	Reported	*Needed*
Public Health	184	463
Industry	49	149
General Hospitals	874	2034
Private Duty	494	338

The number of schools of nursing in 1947 was 21 and the number of new students admitted was 325. It was recommended that in order to produce the 3700 nurses needed by 1955 the twenty schools should increase the number of their admissions gradually and that in 1955 there should be 882 new students admitted.

As all of you know many new hospitals have been completed since 1947 but no new schools of nursing have been established. Instead, the twenty-one schools in existence in 1947 have been reduced to a total of nine in 1955 and only eight of these accepted new students this year. Instead of admitting 882 new students in 1955 only 196 have been admitted during this session by the hospital schools of nursing in Mississippi.

Many factors have no doubt contributed to this unfortunate situation. Possibly we can agree on a few of the causes. *First*, the requirement of high school graduation before admission to schools of nursing eliminated a large reserve of girls who were formerly considered suitable for nurse training. There are still large numbers of girls who drop out of high school before graduating, almost as many as ever. They could be brought into practical nurse training unless that program also sets a standard of high school graduation. The percentage of high school graduates going to college has increased tremendously within the past ten years and is now approaching 60 per cent. This means that the total number of girls from whom admissions may be secured is greatly diminished unless steps are taken to bring the college girls into the picture. *Second*, another difficulty in obtaining recruits for the schools of nursing has been the advice given by nurses themselves in talking with prospects. Miss Gillan in her report stated that nurses who were graduates of small Mississippi schools and who had difficulty with Army, Navy, or Red Cross service discouraged potential students from enrolling in Mississippi schools. *Third*, closing the small hospital schools has reduced the number of potential students by taking out of large areas of the state any programs which might serve as centers of interest to girls searching for avenues of educational and vocational opportunities. An inescapable fact of all higher education is that enrollments usually consist, at least 75 per cent, of persons living within 100 miles of the education center. A recent study of a state university showed that 62 per cent of its enrollment including graduate and professional schools lived within the same county in which the university is located. Closing the small schools without establishing new ones not only removed from training the students they might have enlisted, but, also, reduced the numbers from those areas going to distant schools. *Fourth*, during recent years several large hospitals have been constructed in this state, but I have not heard that any of them have plans for establishing schools of nursing. Smaller hospitals which have manifested an interest are seeking financial assistance before attempting to organize a school.

Recently legislation was adopted placing responsibility for accrediting schools of nursing upon the Board of Trustees of State Institutions of Higher Learning. No one connected with the Board asked for this task. In fact, the possibility that there may soon be no schools in Mississippi to accredit constituted additional discouragement. Having accepted the job of accrediting, however, the Board decided to work toward three objectives: 1) to elevate the quality of nurse education; 2) to reduce the cost of operating schools of nursing to the hospitals; 3) to increase the number of hospitals engaged in nurse education and to increase the number of student nurses.

The suggestions which follow are directed primarily to hospital officials who may be considering the establishment of a new nurse education program. They are described in a pamphlet distributed by the Board and entitled *A New Approach to*

Nurse Education. The objectives are 1) to draw for prospective students upon the 60 per cent of high school graduates who attend college for at least one year as well as the 40 per cent who do not plan to attend college; 2) to reduce the time required in clinical teaching to two years; 3) to base accreditation upon the learning experiences provided by the students; 4) to provide for one-year, two-year, and three-year schools if sufficient interest is aroused to justify such programs.

A program of education calculated to reach these objectives would consist of one year of college work with special attention to courses in biology, chemistry, sociology, and psychology. A hospital school course of study of approximately two years would follow this preliminary training after which the student would be eligible to qualify for registered nurse status or to continue studies leading to a Bachelor of Science degree in nursing.

From the standpoint of the hospital its educational responsibility under this program would be limited to the providing of clinical facilities and actual laboratory-type nursing experiences, plus the opportunity for a girl to earn while she learns a vocation. The length of time in the hospital would be from one to two years, depending upon the clinical courses which it is equipped to offer. The turn-over in student nurses would be faster, but the time given in service would be more. By reducing the number of courses of study for which the hospital is responsible the costs of instruction should be less. Under this plan it is hoped that the service performed by the students will equal the cost of housing, food and incidentals. It is suggested that schools operate on a cash basis, paying for service at an appropriate hourly rate and collecting charges for expense items such as meals.

If this plan is adopted by a hospital it is clear that the cost of clinical nurse instructors must be obtained from some other source than student service. Enrollments in Mississippi schools are too low for this expense to be collected in the form of student fees even though the number of such instructors needed might be only three or four additional people.

For a number of years hospital administrators have recommended to the legislature that funds be appropriated to support nurse education. Many people cannot understand why the public through some of its taxing agencies should not support this type of professional study. Certainly nursing is one professional field which can make a great contribution to the public welfare. Furthermore, the legislature has given encouragement on several occasions either through scholarship funds or otherwise to the idea of state support.

During the period of construction of the teaching hospital and medical school the faculty of the department of nursing of the University of Mississippi has included instructors assigned to certain cooperating hospital schools. Each biennium a request has been filed with the Budget Commission calling for funds to support instruction in five or more such cooperating schools. Unfortunately the request was always reduced by the legislature and this plan of subsidy to nurse education has not been as satisfactory as was hoped. Furthermore, with the inauguration of the teaching program in Jackson, it will be increasingly difficult to continue affiliations unless the legislature is more generous.

There are definite advantages, however, to the utilization of the Department of Nursing in securing state aid for instruction in several strategically located hospitals. For example, the department is authorized to contract with hospitals for clinical services and to supply instructors for educational programs. Another consideration is that there is less difficulty in obtaining appropriations to continue a going program than it is to inaugurate a new appropriation. If the appropriation bill can be drawn in such a way as to specify the amount to be used in the cooperating hospitals there is every reason for anticipating successful arrangements. This plan for securing state aid seems more promising than dependence upon recruitment and scholarship funds. It is more likely to succeed in obtaining adequate funds if community interest in hospital schools of nursing and in state support is aroused.

The problem of recruiting students into schools of nursing remains unsolved so far as our state is concerned, schools which have provided highly qualified instructors, adequate housing, low costs to the students, and which have attained national accreditation have not been able to fill their classes.

Finally, I am convinced that there cannot be a nurse education program which will not cost the public a considerable sum of money in some way. Whether it comes in the form of tax funds, or in increased costs of health and medical services to individuals, there seems to be no escape. If we as a state leave nurse education to others, the cost will be paid in increased charges for nursing service, and in reduced quality of service. I hope that all interested agencies can work together toward a constructive solution to the problem of what course nursing education takes "from here."

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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A CROWING CENTER

The possibilities of our University Medical Center are becoming more apparent. Around the area will soon be built a home for nurses, headquarters for the Mississippi State Medical Association, offices for the Blue Cross, and some hope there will be a school of dentistry in time. It is certain that if we hold our vision and courage this Center will some day be known around the world. There is one addition which seems to many to be imperative and should become a reality at an early date—a new public health building. Our executive secretary, Dr. Underwood, and his associates, are housed in the Old Capitol, long since inadequate.

Our state health department and our four-year medical school can help each other. Although our incoming governor and legislators will have heavy problems before them this coming session, we trust that the service our health department has rendered will merit early consideration. In providing better health and better health conditions, we raise the income of our people, the strength of our state.

SOCIAL SECURITY — BIG ISSUE IN '56

Every physician who is conscious of his duties as a citizen should now be taking an active interest in a timely issue which the American Medical Association considers of great importance—not only to the medical profession but to all of the American people.

That issue is HR 7225, a bill passed by the United States House of Representatives last summer near the end of the Congressional session. This bill, known as the Social Security Amendments of 1955, was first rushed through the House Ways and Means Committee without public hearings. Then it was passed in the House, by a vote of 372 to 31, under a suspension of rules which barred amendments and limited debate to 40 minutes. The Senate Finance Committee, however, refused to take hasty action on a bill of such major importance. After hearing the many serious questions raised by Mrs. Hobby, then Secretary of the Department of Health, Education and Welfare, the committee decided to hold extensive public hearings during the second session of the 84th Congress.

Just what is this legislation that appears to be so politically attractive to individuals with an eye on the 1956 elections? Why was the House majority so determined to avoid open hearings and normal debate? Let's take a brief look at the main provisions of the bill.

This is the legislation which would lower the Social Security retirement age for women from 65 to 62; extend monthly benefits for permanently and totally disabled children beyond the age of 18; expand compulsory social security coverage to all self-employed professional groups except physicians, and raise social security taxes over and above the increases already scheduled for the next twenty years. Those provisions alone demand careful study of their effects on the philosophy, scope and financial stability of our social security system.

The most controversial section of the bill, however, is the one which would make permanently and totally disabled persons eligible to receive their social security retirement benefits at age 50 instead of 65. It is this section which is of particular concern to the medical profession. It is of far greater concern than the question of voluntary or compulsory coverage of physicians under the social security system. This is a separate issue which we are not discussing in this editorial. The plan for a national system of permanent and total disability benefits has far more serious implications for medicine and the nation.

It raises questions such as these: Is there any real need for a federal program? What are the facts on permanent and total disability? Won't this duplicate or overlap existing programs of assistance and rehabilitation? What effect will cash handouts have on a patient's incentive to be rehabilitated? Won't this extend federal control over physicians?—and, finally—how will this affect the future of medical practice? Will this lead, step by step, to the lowering and eventual elimination of the age-50 eligibility requirement; then, cash benefits for the dependents of those who are permanently and totally disabled; then, a temporary disability benefits program; then, cash benefits or direct government payments for hospital or medical costs, and then, ultimately, a full-fledged system of government health insurance?

These are but a few of the many grave questions which already have been raised concerning this legislation. As physicians, we must be concerned over the medical aspects of the problem. As citizens, we also must be concerned over the trends and implications in the never-ending expansion of our social security system. The minority report of the House Ways and Means Committee expressed it this way:

"We do not believe that our committee has discharged its obligation to either the Congress or to the American people by its brief and closed-door consideration of this vital legislation. We have sought to point out the grave social and economic implications of the bill. We have dwelt at some length with the staggering ultimate costs of this developing program, because we do not believe that either the Congress or the public have any conception of its magnitude."

Our social security system now has reached the point where any further changes may have a profound influence on the nation's economic, social and political future. The time has come to face up to the question of just what social security should accomplish and just where it should stop. The Association strongly *urges* that the social security issue be taken out of the arena of vote-catching politics; that there be an objective, thorough study of social security in all its present and future aspects, and that the facts and realities emerging from such a study to be used as the basis for a sound national decision on this vital issue. It especially protests precipitate action on the complex questions of disability without thorough investigation of alternative mechanisms.

In our opinion, that is a reasonable, responsive policy that deserves the moral and intellectual support of every physician.

NO CENTRALIZATION HERE

The problem of accidental deaths in this country is perhaps the greatest challenge to the medical profession and to the people among causes of death. One hundred thousand accidental deaths, 900,000,000 injuries and nine billion dollars cost per annum is too heavy a toll for our human society to pay at this time. Each accidental death is preventable. Deaths by accident on the farm seem to be on the increase, with no decrease on the total number of deaths by accident. Seventy-one per cent of the motor vehicle deaths occur out in the rural communities, along the highways, on the farms and at the site of the airplane crash. This accidental death toll makes it important to have good hospital, nursing, and doctor service out in every small town and rural community.

FEDERATED FUND-RAISING

We believe that in many of our towns over the state a grave mistake has been made by letting somebody talk one group then another into "federated fund-raising." Such a plan of giving easily destroys what we are entitled to call the institution of free will. The individual is deprived of giving in ratio to what he thinks most worthy; some groups may be included that he does not think even worthy of support.

If a community allows its fund-raising to be "united," it seems a modicum of requirement that individuals who control federated funds be elected in a manner consistent with democratic principles. We might in the effort discover that our approach to the solution of our community problems is more socialized than democratic!

MORE BUSINESS FOR ALL

Someone has said that science takes life apart, philosophy puts it back together and that religion gives it a value. It is the business of medical science to prevent and cure disease, to find the cause and to apply the treatment; and it is the business of philosophy and religion to know and to understand the individual and to take care of him. In other words, the individual must also be treated, as well as the disease that is attacking him. He must be encouraged and inspired and made to know and to feel that he counts in this world of ours according to a Divine plan.

DR. WYNNE CELEBRATES FIFTY YEARS IN PRACTICE

It was a pleasure and an honor to take part in the program at the First Methodist Church in Merigold on Sunday, November 27, when Dr. Andrew M. Wynne received his fifty-year certificate and pin. The Baptist services were pretermitted for this celebration. It was easy to see that Dr. Wynne is loved, trusted, and appreciated in his hometown. No doubt he has entered into the pleasures and joys and sympathies of his people. He has put service above self in helping to build a fine type of citizenship. He is able in his profession. He has been progressive, having read the first paper in our state as far as we know on the use of atebrin in the treatment of malaria. This is just an indicator of his progressive spirit. As a doctor and as a citizen he is outstanding.

He was very positive in saying he could not have carried on as he has had it not been for his wife, whose love, kindness, patience and courage have been a strength through the years. Dr. Wynne dropped a word to us about her that tells the story. In the horseback days when he would come home in the middle of the night with his boots frozen and the strings unable to be untied, she would dip a large towel in hot water and steam the boots and boot strings until he could get them off for the night.

After the service Dr. Wynne was host for lunch to a group including the Rev. W. O. Hunt, Mayor C. M. Clark, Drs. J. C. Russell, C. W. Patterson, E. LeRroy Wilkins, Paul Gamble, John Archer, Howard Nelson, Oscar Ringold, James Wiggins, and James A. Westerfield.

Lincoln County Health Department had the formal opening of its new building Tuesday evening, the fifteenth of November. A short program was held at one-thirty o'clock, interested guests from over the state participating.

The Golden Rule is a good one to use in the practice of medicine as well as to settle all problems.

News and Comment

SOUTHEASTERN SURGICAL CONGRESS

The Richmond program, March 12, 13, 14, 15, 1956 is complete and announcements are being mailed out.

Every fellow of the Congress should take advantage of the opportunity of hearing the eighteen outstanding surgeons listed on the program. Make your reservation at the John Marshall Hotel.

The wives of the fellows of the Southeastern Surgical Congress have organized a Woman's Auxiliary and are now actively engaged in promoting the Auxiliary which will have its first meeting in Richmond during our Assembly.

SOUTHERN MEDICAL ASSOCIATION

The annual meeting of the Southern Medical Association held in Houston, Texas, headquartered at the Shamrock, was attended by 2,564 physicians, 1,011 wives, 331 technical and scientific exhibitors, and others for a final official count expected to exceed 5,000.

Officers Elected (by the membership)

President-Elect—J. P. Culpepper, Jr., M.D., Hattiesburg, Miss.; First Vice-President—W. K. West, M.D., Oklahoma City, Okla.; Second Vice-President—Denton Kerr, M.D., Houston, Texas.

Officers Elected (by the Council)

Chairman of the Council—J. Morris Reese, M.D., Baltimore, Md.; Vice-Chairman of the Council—A. Clayton McCarty, M.D., Louisville, Ky.; Member, Executive Committee—Henry H. Turner, M.D., Oklahoma City, Okla.; Member, Board of Trustees—R. L. Sanders, M.D., Memphis, Tenn.

Schedule of Future Meetings

1956, November 12-15—"Golden Anniversary" —(Conjoint meeting with the Medical Society of the District of Columbia), Washington, D. C.

1957, November 11-14—Miami Beach, Fla.

1958, November 10-13—New Orleans, La.

1959, November 9-12—Atlanta, Ga.

1960, November 14-17—Baltimore, Md.

LSU STRESSING DISEASES OF THE SKIN

The second annual one-day course, stressing diagnosis and management of a few of the more common skin diseases, will be held at L.S.U. School of Medicine on Saturday, January 21, 1956, from 9 A.M. Cases will be presented and discussed by members of the department. There will be no didactic lectures.

Those interested please inquire: Departments of Dermatology, L.S.U. School of Medicine, New Orleans, La. Registration fee $10.00.

COMMITTEE ON CAREERS IN NURSING MEETS

Miss Lillian Eno, chairman of the Committee on Careers in Nursing, presided at the semi-annual meeting held in Jackson, November 7, attended by members from the Mississippi Medical Association, Mississippi State Nurses Association, Mississippi Hospital Association, Mississippi League for Nursing, Mississippi Library Association, Agriculture and Industry Board, directors of schools of nursing, school administrators, guidance counselors, Board of Trustees of Institutions of Higher Learning, Mississippi Hospital Commission, student nurses, and public relations directors. Future plans discussed and recommended by the membership of the committee included appointment of a fact-finding committee headed by Miss Joyce Sigrest to evaluate past efforts directed at nurse recruitment and to make plans for the ongoing of the program; appointment of a subcommittee on finance headed by Mrs. Tom Bailey to find means of financing the work of the Committee; reactivation of subcommittee on public relations directed by Mr. Leo Muller, public relations director of M.S.C.W., to interpret to the citizens of Mississippi the objectives and accomplishments of the Committee; set the date for the state-wide observance of nurse appreciation week, March 12-17. Miss Eno announced that the brochure on nursing in Mississippi that will pinpoint through factual material the opportunities and advantages of learning and serving in Mississippi will be ready for distribution to all junior high school students in the state December 1.

The Woman's Auxiliary to the Mississippi Medical Association, which won recognition in nurse recruitment for establishing the second Future Nurses Club in the nation several years ago on the Gulf Coast, was commended by the Committee for their efforts this year under the administration of Mrs. R. C. O'Ferrall, the new president and her committee on nurse recruitment headed by Mrs. George Townsend of Forest. Future Nurses Clubs are on the march in Mississippi and the Medical Auxiliary is helping them chart their way.

Miss Frances L. Moak, library consultant for the University Nursing Department and Counselor on Careers, reported that her work with county committees indicated that the prospects for attracting a continuing supply of new nurses in Mississippi are distinctly encouraging for two reasons: first, an upsurge of public interest in nursing as expressed by consumers of nursing and, second, a new alertness on the part of nurses themselves to their own responsibilities in the program. Miss Moak gave a detailed report of ways in which forward-looking nurses and friends of nursing are sparking a great variety of activities that bid new nurses to join them. Ways in which nurses and interested groups all over the state are helping sensitize young women to the duties, opportunities, and pleasures of nursing were outlined by Miss Moak in her description of Mississippi's saturation program for nurse recruitment.

THE COMMITTEE ON CAREERS IN NURSING FOR MISSISSIPPI HOPES TO . . .

1. Secure an increased number of applicants (1956 goal—800) to schools of nursing in Mississippi.
2. By accomplishing the above, permit schools of nursing to exercise greater selectivity in their choice of applicants, thus admitting those with more aptitude for nursing as a career.
3. Stress the importance of both *learning in Mississippi* and *serving in Mississippi.*
4. Reduce the withdrawal rate of nursing students by using greater selectivity, and maintaining increased contact during the nursing education program.
5. Alert Mississippians as to the importance of adequate and good nursing services through a planned public relations program.
6. Promote increased facilities for nursing education within the state so that additional applicants may be accepted,

It is an association of registered professional nurses in all fields of practice, members of allied professions, consumers and other laymen concerned with the public interest, qualified practical nurses, and agencies that provide nursing services and education for nursing.

INTERPRETING PEDIATRIC LITERATURE

Chronic Abdominal Pain in Children. H. R. E. Wallis. Practitioner. 174: 579-583 (May) 1955, (London, England).

The diagnosis of chronic abdominal pain in children is often difficult but can be ascertained in nearly every case. A careful history should be taken, with special reference to the milk supply (to check the possibility of tuberculosis or brucellosis) and the family history of convulsive disorders (in case of masked epilepsy). Examination should be directed not only to the abdomen but also to the nose, mouth, chest, and spine (upper respiratory infections, dental causes, referred pain).

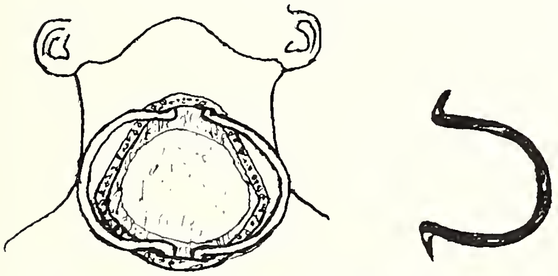
A tuberculin test should be performed. The urine should be examined microscopically, in case of renal stone or chronic pyelitis. Roentgenography may be indicated; a plain film of the abdomen, barium meal examination, barium enema, and intravenous and retrograde pyelograms may be used. Agglutinations for Brucella abortus and a brucellin skin test may help to elucidate some obscure cases. An electroencephalogram is indicated if no organic cause can be found and the disorder is paroxysmal. The cases in which pain is of psychic origin are few. They can often be elucidated by the child's own history, but it should never be presumed that pain is psychogenic until other causes have been ruled out. Finally, recurrent neutropenia is a possible, though rare, cause of chronic abdominal pain in children.

Comment:

These cases are not only somewhat unusual, they are frequently complicated and quite difficult to arrive at a correct diagnosis and treatment. We very frequently exhaust our diagnosis as well as treatment ability. This is a very fine article to induce us to review these conditions in our own mind.

Harvey F. Garrison, M.D.

A SIMPLE THYROID RETRACTOR



"Shown is a simple home-made thyroid retractor which we have tried many times and find it eminently satisfactory with no 'bugs' in it," states Drs. C. C. Hightower, Sr. and Jr., of Hattiesburg.

They describe it as a very satisfactory skin retractor when used as depicted, one on each side. It may easily be bent to any desired position and will hold. It is not cumbersome or in the way. It is made of nickel-plated brass wire, about the size of telephone wire, as found in bath curtain rings, about six inches long, sharpened at each end and bent to shape.

"We hope other doctors will find it as satisfactory as we have," they conclude.

AMITE-WILKINSON SOCIETY

The Amite-Wilkinson Medical Society held its usual meeting at the Field Memorial Community Hospital in September.

Dr. Billy Polk of Gloster, Miss., was elected to membership.

An excellent program using motion pictures in color on the cytological diagnosis as advocated by the Papanicolaou's technique was rendered. Dr. S. E. Field, program chairman.

The society went on record as voting to support the polio program as outlined by the Mississippi State Public Health Association, and the Mississippi Medical Association's suggested program and age groups.

ANNOUNCEMENTS

Elmer W. Snydor, Jr., M.D., announces the opening of his offices at 1089 Madison Avenue, Memphis, Tenn.. and Crittenden Memorial Hospital Doctors Building, West Memphis, Ark. Practice limited to thoracic surgery.

George D. Purvis, M.D., and Thomas C. Turner, M.D., announce their association for the practice of bone and joint surgery at 514-D East Woodrow Wilson Drive, Jackson, Miss.

The Dick X-ray Company, Memphis, Tenn., wishes to announce that we are in our new location, 1270 Madison Avenue, Memphis. Telephone 36-1769.

COURTESY CARD

FRANK G. GRUICH, M. D.

Obstetrics and Gynecology
Barq's Building

Biloxi, Mississippi

DEATHS

DR. THOMAS HUEY

Dr. Thomas W. Huey, resident of 1422 St. Ann Street, died in Jackson University Hospital in Jackson after a long illness.

He was a native of New Orleans and had lived in Jackson for the past 10 years. He lived in Crystal Springs for several years.

Dr. Huey attended the University of Mississippi and was a graduate of Tulane Medical School.

Dr. Huey practiced medicine in Copiah, Yazoo and Issaquena counties. Three years ago he was awarded a 50-year certificate as a practicing physician of Mississippi.

Survivors include his wife, Mrs. Blanche Lowe Huey of Jackson; two daughters, Mrs. Everett Nordin of Jackson, and Mrs. A. B. Myers of Memphis; three sons, A. D. Huey of Jackson, D. T. Huey of Baton Rouge, La., and Robert E. Huey of Memphis; four grandchildren, and three great-grandchildren.

DR. H. L. COCKERHAM

Services for Dr. H. L. Cockerham, veteran Gunnison physician who died October 24, were held from the Gunnison Baptist Church.

Dr. Cockerham, who was 74, was a former president of the Six Counties Medical Association and was widely known in north Mississippi. He had lived at Gunnison the past 45 years.

Dr. Cockerham was a deacon of the Gunnison Baptist Church.

Surviving are his wife; two sons, O. C. Cockerham of Gunnison and Dr. Howard L. Cockerham, Jr., of Goodwater, Ala.; three daughters, Mrs. R. Embry of Baltimore. Md.; Mrs. Grady Phillips of Gunnison; and Mrs. C. Lemaxey of East Grove, Mo.; and two sisters, Mrs. Mable Whittaker of Gunnison and Mrs. Maude White of Liberty.

DR. A. M. GILL, SR.

Dr. A. M. Gill, Sr., 79, active practicing physician of Sidon, died at his home November 7, following a heart attack.

Dr. Gill was one of the best known physicians in Leflore County, having practiced in Sidon since 1928.

Dr. Gill was born in Clinton and was a graduate of Tulane University's School of Medicine. He had practiced in Swiftown before coming to Sidon.

He leaves his wife, Mrs. Annie Mae Gill; two sons, A. M. Gill, Jr., of Clinton and William Gregg Gill of New Orleans, and nine grandchildren.

DR. W. D. SMITH

Dr. William D. Smith, veteran physician and civic leader, died October 29.

Dr. Smith, who was 82, several years ago received his 50-year pin from the Mississippi Medical Association. He attended old Memphis Medical School and received his M.D. degree from Vanderbilt University at Nashville.

He led the movement to secure a full-time health unit for Tate County.

Dr. Smith was on the Medical Advisory Board for Tate, Panola, and DeSoto counties during World War II and has served as an examiner for the Veterans' Bureau.

Dr. Smith was a founder and past president of the Senatobia Commercial Club and was awarded a lifetime honorary membership in the Senatobia Rotary Club. He was a Mason, a Woodman of the World, and a steward and trustee of the Methodist church.

Surviving are his wife; four daughters, Dr. Ethelyn Smith of Senatobia, Mrs. F. P. Jones of Newport, Ark., Mrs. Homer McMahan of Hattiesburg, and Miss Emile Smith of Senatobia.

DR. H. F. MAGEE

Dr. H. F. Magee, 71, former superintendent of the old Charity Hospital and well-known Jackson physician, died at Baptist Hospital after a long illness, October 17.

A native of Amite County, Dr. Magee received his bachelor of science degree from Millsaps College, his medical degree from Tulane University Medical School, and did graduate work at Harvard University. In Jackson, he lived for many years at 1520 North State street.

Dr. Magee came to Jackson in 1917 and was associated with the late Dr. E. H. Galloway. In 1918 he became Jackson's city health officer. He served as medical examiner for the draft boards of both World Wars.

For many years Dr. Magee was physician for Millsaps College and the Methodist Home. In 1914, he was drafted by his life-long friend, the late Gov. Thomas L. Bailey, to become superintendent of the Charity Hospital. He was reappointed by Gov. Fielding Wright and served in that capacity until March of 1952 when he suffered a heart attack.

He continued his private practice on a limited basis until his last illness.

Dr. Magee was a member of the Central Medical Society, the Mississippi State and Southern Medical Associations, the American Medical Association, and the staffs of the Baptist Hospital and St. Dominic's Hospital. He was a charter member of the North Jackson Kiwanis Club and a faithful member of the Galloway Memorial Methodist Church.

He was married to the late Jim Dye Hailey Magee of Crystal Springs, who died in 1947.

Survivors include two brothers, Dr. H. L. Magee and E. Flowers Magee, both of Jackson; and one sister, Mrs. H. L. Carruth of Kokomo, Miss.; three nephews, Henry Holmes Magee of Tulsa, Okla., Dr. Charles B. Magee, of Jackson, and H. Sparks Carruth of Kokomo; and five cousins in Jackson, Mrs. Thomas D. Hendrix, J. C. Flowers, Henry G. Flowers, Mrs. J. W. Lane, and Mrs. Frank James.

DR. F. H. RUSSELL

Dr. F. H. Russell, a former resident, died at his home in Wickliffe, Ky., after a serious illness of several months duration.

Dr. Russell is the brother of J. M. Russell of Eden and Walter Russell of Fugates; and of the late William E. and H. O. Russell of Fugates.

Services were held in his adopted home town.

Dr. Russell and his wife, who survives, had spent 33 years in Wycliffe where for 28 years he served faithfully as a "country doctor."

Dr. Russell never let the weather, bad roads or distance keep him from administering to the sick and his hometown newspaper paid a tribute to his unselfishness after he retired. The Herald re-published the account in August, 1955.

A native of Yazoo County, Dr. Russell graduated from the University of Tennessee School of Medicine in Memphis and interned in City Hospital in Memphis. He practiced for several months in Wayside until he saw service in World War I. On his separation, he practiced in Eden until 1921 when, with his bride, the former Rue Rogers, settled in Wickliffe.

Although busy in his professional duties, he was also very active in community and civic organizations.

DR. LOCK MERIWETHER

Dr. Lock Meriwether, former Jackson physician, died September 10 in Sunset, La. He had been a semi-invalid since a stroke suffered a few years ago.

A native of Virginia, and a graduate of the University of Virginia, Dr. Meriwether was associated for a number of years with the Mayo Clinic in Rochester, Minn. He came to Jackson in 1939 where he practiced his specialty of internal medicine in association with Dr. R. C. O'Ferrall, Dr. R. Lee Clark, now of Houston, Texas, and the late Dr. H. R. Shands.

Dr. Meriwether left Jackson for service in the Army in 1943. Upon leaving the Army services he became associated with the Ochsner Clinic in New Orleans, where he remained until he suffered a stroke in 1952. He was a member of the Episcopal church.

He is survived by three brothers, two of whom live in Sanford, Fla., and one in Lynchburg, Va.

The Present Problems in Viral Hepatitis*

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Seldom a meeting of this sort is held nowadays without a discussion of viral hepatitis, in one or another aspect. In this country, the problem of infectious hepatitis is creating more current interest among public health workers than probably any other virus disease except poliomyelitis. Journals dealing with the medical sciences are publishing increasing numbers of studies on the subject each year. However, in many respects such scientific investigations are like those of meteorologists who prepare learned papers on the subject of the weather, but whose records are merely the chronicle of the naturally occurring phenomena. It is apparent that more success has been met in passive observation of the disease hepatitis than in measuring the biological factors which influence the host-parasite relationship: susceptibility, pathogenesis, and production of immunity in the host; transmission, virulence, resistance and latency in the parasite.

In analyzing the voluminous observations and investigations which have been published on this subject, one seldom finds two workers who are in complete agreement. There have been changes in opinion from time to time as to what the group of diseases should be called. At present it is generally accepted that, although other organ systems are involved, the chief site of infection is the liver, hence the term hepatitis[1],[2]. From the standpoint of etiology, most evidence indicates that at least two groups of transmissible agents are implicated, both of which have been demonstrated to be of ultrafilterable size, therefore unquestionably viruses[2],[3]. Consequently, such misleading terms as "catarrhal jaundice" and "serum hepatitis" have been replaced respectively by virus hepatitis A and virus hepatitis B[4],[5].

Although hepatitis A (infectious hepatitis) has become of major interest only comparatively recently, a similar syndrome was described in antiquity, and outbreaks of jaundice and symptoms consistent with the diagnosis of hepatitis, particularly among troops during military campaigns, have been noted in centuries past. Thousands of cases of jaundice occurred during the American Civil War, associated with very few fatalities[6]. During World War I many cases were seen among troops of both sides in Europe, and during World War II hepatitis was the leading cause of disability among American troops in the Mediterranean Theater. Epidemic hepatitis was again prevalent among American troops during the fighting in Korea.

The problems created by the prevalence of hepatitis A among troops during World War II gave impetus to detailed studies of the disease. Before 1940, knowledge of the disease was extremely speculative. But rather large-scale investigations of outbreaks occurring during and since World War II have given us most of our presently accepted knowledge of the epidemiology of hepatitis A. Diagnostic studies of hospitalized military and civilian cases have contributed much to what is now understood about its clinical manifestations. In addition, many experiments using human volunteers have helped to clarify some of the mysteries surrounding the etiology of hepatitis A and to distinguish between hepatitis viruses A and B (serum hepatitis) which have been shown consistently to be separate groups of organisms[3].

It has been noted already that epidemics of hepatitis have been observed frequently among combatants during wars; this is not to say that hepatitis has been uncommon among civilians, or during peacetime. Documented outbreaks among civilians were observed in the United States as long ago as 1812, and evidence of 62 such outbreaks occurring prior to 1920 has been published[7].

The history of hepatitis B is not well delineated prior to World War II when more than 50,000 cases of jaundice developed among American military personnel following their inoculation with yellow fever vaccine containing human serum[2],[4]. Previously, outbreaks of jaundice had been observed in association with the parenteral administration of medications, but these descriptions contributed little to the knowledge of the pathogenesis of the disease. The terms "serum hepatitis" and "homologous serum jaundice," formerly applied to hepatitis B, have been found lacking in that:

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1) the causative agent is also transmitted in whole blood or in blood derivatives other than serum; 2) hepatitis virus A is also transmissible through parenteral administration of blood, serum, etc.; and 3) *jaundice* is not a constant finding[5]. Hence, the change in nomenclature.

The category *hepatitis*, not distinguishing between "infectious" and "serum," but including both designations, was added beginning in 1952 to the list of diseases reported weekly by states to the National Office of Vital Statistics. The preponderance of cases reported since that time have undoubtedly been of hepatitis A. National collection of morbidity data on this disease to any extent has been recorded only since 1947, too short a time to give a reliable measure of its true incidence among civilians even at the present.

Undoubtedly, there are still many areas in the United States in which hepatitis, although occurring, is not reported. Yet, with the observed annual increase in total cases reported, the reliability of each year's reports improves[8]. Because of the lack of complete validity of reported data there is some reluctance to admit that an increase in prevalence of hepatitis in the United States actually exists, explaining the recorded numerical increase by improved reporting of the disease and sharpening of the diagnostic acumen.

You are in the best position to determine whether you have observed an actual increase in hepatitis over the past decade or so in Mississippi. From the reports there is every indication that you have. During 1954, 1086 cases of hepatitis, an average of 21 cases per week, were reported from Mississippi to the National Office of Vital Statistics[9], and the final figure for 1953 is even larger, an average of 24 cases per week with a recorded total of 1253[10]. Only one-fifth this number of cases, 250, were reported in 1952[10]. But the total reported during the five-year period 1947-1951 was only 135 cases, slightly more than half the number of cases reported in the year 1952 alone[10,11].

Nationally, the year of highest reported incidence of hepatitis to date was 1954, when 49,739 cases were reported, one and one-half times as many as the previous year, and considerably higher than the reported incidence of poliomyelitis for 1954[8,9]. From these data, then, hepatitis is clearly a widespread disease of high incidence, and in general it is an increasing rather than a decreasing problem.

The most significant distinction between hepatitis A and hepatitis B known at the present time is the epidemiology, and for this reason the two will be discussed separately.

Hepatitis A infections have been observed throughout the world, although the exact relationship of race, climate, and geographic area to occurrence of the disease cannot be determined until specific diagnostic tests are available. Epidemics of hepatitis A in institutions[12,13], among campers[14], in families[15,16], in rural populations[17], etc., have been described extensively and other outbreaks have been recognized. On the other hand, many times in the absence of epidemics, cases have been reported which fulfill all clinical criteria for the diagnosis, supporting the probability that the disease is endemic in certain areas. Many cases reported in the United States since 1953 have been regarded as unassociated with outbreaks[8].

A seasonal trend has been recognized in some areas of the world. In general, the number of epidemics and, therefore, the incidence of cases have been described to increase in the autumn and decrease in the spring months[2]. In this country, however, the reported incidence during 1953 indicated a mild upswing during April and May and again in December, leading to a rather sharp peak of incidence in February and March of 1954, reaching the low for the year during October and November[8]. Such reliance as can be placed in the reported figures for the state of Mississippi during the two years would indicate no correlation during 1953 with the national weekly trend, since in Mississippi in that year more cases were reported during September and October than any other two-month period. In February 1954 there was a less marked peak in weekly incidence for the year, with gradual falling off of reported cases continuing until the end of the year, similar to the curve inscribed by the national figures[9]. The numbers of cases reported weekly from Mississippi have been admittedly too small to permit definite conclusions to be made concerning the seasonal pattern of hepatitis in the state, except possibly to indicate that *no* consistent pattern occurs whatever.

In outbreaks of hepatitis A observed among civilian populations where all age groups are at an equal risk of infection, school age children have highest attack rates, with a gradual reduction in attack rates over age 15. The disease is also generally less severe in the younger age group[3,18]. The following sequence has been observed in rural or small urban communities without history of recent experience with hepatitis: first, the sudden appearance of a case or a small number of cases among school children. This is followed in three or four weeks by a large number of cases. Perhaps several such waves, similarly spaced, will be superimposed before the outbreak wanes. Secondary cases appear among the children and adults who are home contacts of the infected school children, these cases appearing three or four weeks after the primary case. Sometimes secondary cases occur in every member of a rural household. The outbreak is observed to smoulder on for six or seven months or longer; then no more new cases are seen in the immediate area, and the handful of chronic or remissive cases remain to remind that the outbreak has passed. By this time a nearby town or adjacent rural community may be experiencing the beginnings of a similar sequence. In cities, outbreaks occurring in housing developments have been described with lower attack rates among school age children and with lower secondary attack rates among family contacts of cases than those described in rural outbreaks[15],[18],[19].

The incubation period observed in outbreaks of hepatitis A, and corroborated experimentally by feeding the infestive agent to human volunteers, varies from 10 to as long as 50 days, but most cases occur within three to four weeks or an average of about 25 days after exposure. The virus has been proved to exist in the stools during the acute phase of the disease, and sometimes for a varying period after recovery. This was shown on one exceptional occasion to be as long as 16 months[5]. The virus is present in the blood before onset of symptoms and during the early symptomatic phase of illness. Evidence to support the existence of the virus in nasopharyngeal secretions or in urine during any phase of infection is very scant.

As noted, hepatitis A is known to be transmissible by the fecal-oral route. This is probably much the most important mode of spread. Transfusions of infected whole blood or injections of infected human blood derivatives account for some cases, and conceivably cases could result when syringes, needles, or parenteral fluids become accidentally contaminated by the blood of a patient with infectious hepatitis during the viremic stage. However, the possibility of a parenteral route of transmission is not regarded as important in the propagation of an outbreak. The chain of transmission of hepatitis A probably depends upon the ingestion of feces containing the virus by a susceptible person.

Antibodies against hepatitis A are widespread, as evidenced by the fact that pooled human gamma globulin, in very small doses, is a useful prophylactic during outbreaks of the disease[20],[21],[22]. The commercial gamma globulin, however, is usually made from the blood of adults who have specifically denied a history of jaundice when the question was routinely asked.

The case fatality rate of hepatitis A is characteristically low in most reported epidemics, less than 0.5 per cent. It would usually be found to be lower if mild and subclinical cases could be included in outbreaks studied. On the other hand, outbreaks in India and Africa have been described with much higher ratio of deaths than is seen in the United States. To account for this ratio, malnutrition is offered as an underlying factor in these outbreaks, and it is strongly suggested that in the Indian outbreak, pregnancy also predisposed to fatal outcome[23],[24].

What is known about the epidemiology of hepatitis B is limited to observations made of cases infected mechanically by man, either experimentally or accidentally. The accidentally infected group includes persons who, in the course of medical treatment, have received human blood or blood products containing the agent of hepatitis B. Also included in this group are persons whose infection was acquired from any instruments contaminated by the blood of an infected person. Thus, transmission has occurred through such bizarre means as contaminated tatooing needles or the sharing of hypodermic equipment among narcotic addicts. Instruments used in surgery or autopsy could conceivably transmit the infection to persons accidentally wounding themselves. There have been instances of hepatitis developing shortly after birth, indicating a possible transplacental passage of the virus[25],[26]. It is not known whether transmission through such natural phenomena as arthropod bites is possible. Extremely close contact has been suspected on rare occasions to effect transmission of hepatitis B, but such instanees have not been established.

Hepatitis virus B has not been demonstrated in feces, urine, or nasopharyngeal secretions. Feeding serum known to contain virus B has failed to infect human volunteers. From these observations, only the mechanical parenteral route of infection is proved to be important in transmission of hepatitis B. How the disease came to be transmitted naturally, before the days of intrusion beneath man's skin, remains a mystery.

Hepatitis B is apparently widespread, and may occur whenever there is an opportunity for injection of virus B from person to person. The population at risk, then, is artificially limited, and conclusions cannot be made in regard to susceptibility. However, it is not believed that attack rates vary much from age group to age group.

The incubation period is long, six weeks to six months or longer; the earliest incubation period overlaps briefly with the longest limit of incubation of hepatitis A. Virus B may be present in the blood during much of the incubation period, and for a very long time after onset of symptoms. The upper limits of this viremic period are not known, but have been observed to last more than five years in one case. Gamma globulin is apparently of little value in prevention of cases of hepatitis B[27,28], and previous infection with either hepatitis A or B fails to protect individuals from experimental infection with the other virus.

The limitations of time do not permit a lengthy discussion of the clinical aspects or treatment of viral hepatitis. Excellent descriptions of cases and courses of management of the disease are available. However, certain clinical features might well be emphasized.

In the individual case it is not possible to distinguish between the two diseases from a purely clinical standpoint. In observing large numbers of cases hepatitis B tends to be more protracted and severe, with a higher case fatality rate. On the other hand, the onset of hepatitis B is usually more gradual and fever much less common.

Icterus may not occur in a large proportion of cases of hepatitis A, particularly among children, and such cases are usually milder. When icterus occurs, it typically follows the onset of systemic signs and symptoms by a week or more. In hepatitis B this preicteric period may be longer, lasting a month or more, and non-icteric cases of hepatitis B also occur.

The entire gamut of infection from fatality to asymptomatic case occurs with both diseases, undoubtedly, although it is not possible to prove the diagnosis unquestionably in subclinical cases because specific diagnostic tests are not available. Investigations of outbreaks of hepatitis A have revealed persons with transiently palpable livers and/or abnormal liver function tests who manifest no subjective evidence of disease. Most frequently when the donor whose blood was the source of a case of hepatitis B is examined, there is no history or physical evidence to contribute to a diagnosis of past or present hepatitis. Both types of cases can be regarded as well carriers of the respective infections. Knowledge of the pathogenesis of viral hepatitis is limited because few cases come to autopsy. They represent usually the fulminating infection formerly known as acute yellow atrophy[26].

In epidemics, the diagnosis of hepatitis A is rather quickly recognized from 1) the association of cases, 2) the clinical history, 3) the physical findings, and 4) the course of the disease. Epidemics of hepatitis B have also been described and the diagnosis confirmed by the elicitation of a factor of parenteral exposure common to all cases. Diagnosis of the border-line cases in outbreaks frequently is made because the physician is on the lookout. The mild sporadic cases of viral hepatitis, and those cases of hepatitis A which are occurring in small numbers wherever the disease is endemic present more difficult diagnostic problems, and undoubtedly the diagnosis is missed in some of these. It is essential, under these circumstances, to rely on a battery of so-called liver function tests for diagnosis.

Many biochemical tests give evidence of impairment of liver function, although they usually do not give a quantitative measure of the degree of impairment. Limitations both of time and the author's experience do not permit a discussion of these tests. It is sufficient to say that in the hands of the experienced clinical laboratorian, repeated use of the whole battery of liver function tests may be helpful in 1) confirming the diagnosis of viral hepatitis, in 2) determining the stage of the disease, and 3) in evaluating the results of a course of treatment the disease is taking in a given patient[30]. The results of liver function tests in infants are frequently more difficult to evaluate, however.

The infection with hepatitis A or B may follow one of three possible courses—complete recovery, fulminating or rapid downhill course with fatality, or chronic liver disease with constant progression or recurrence of signs and symptoms. Clinical recovery from hepatitis A is usually more rapid than from hepatitis B. In either disease the occasional patient will suffer a clinical relapse, sometimes repeatedly. Some of these patients develop a chronic hepatic impairment—post-necrotic cirrhosis, which runs the course of portal cirrhosis. It is usually impossible for the pathologist to differentiate this type of cirrhosis from primary portal (Laennec's) cirrhosis by examination of liver tissue[29]. Therefore, one can speculate on the possible role that unrecognized infection with viral hepatitis plays in etiology of those cases of idiopathic portal cirrhosis where no toxic or nutritional origin can be discovered[31].

At the present time, no confirmation of cases can come from the virus diagnostic laboratory except through the use of human volunteers, which is prohibitive on other than an experimental basis. Evidence suggests that both virus A and virus B have been propagated in the chick embryo following passage in tissue culture, but the only assay of infectivity of the passage material was in human volunteers[3], [32], [33]. Skin test material prepared by passage of what was suspected to be virus A in the embryonated egg has been demonstrated to produce responses in all persons with clearcut history of past infection with hepatitis A[34]. However, rather large numbers of positive responses are observed among persons without history of hepatitis or exposure to hepatitis, and control injections give occasional positive responses, so that the test is of doubtful help in diagnosis of the acute disease[35].

No successful efforts to produce an antigen in the laboratory which will give consistent and reproducible responses for serologic testing have been reported.

The range of experimental animals used in an attempt to produce evidence of infection with either virus A or virus B is probably the most inclusive ever used in study of any virus[36],[37]. If infection occurred in any of these, the manifestations were not clearcut or consistent.

Early in 1955, work was published which indicates that acute phase blood specimens from persons with hepatitis A consistently evoke a so-called "histiocyte response" in the allantoic cavity of the developing chick embryo. This response is apparently inhibited by adding convalescent phase serum to the inoculum[38]. No confirmation of this has been announced, but if these findings are reproducible this technique may be used to study some of the physical and biological properties of the organisms and their natural occurrence in man without the dependence on human volunteers.

Despite the limitation on investigation of these viruses, certain of their characteristics have already been identified through the volunteer studies. The viruses are capable of passing through bacteria-tight Seitz filters; virus A resists heating to 56° C at least 30 minutes[39]; virus B apparently withstands heating at 60° C for four hours[40].

Both viruses A and B have survived freezing at —60° C for many months. The limits that they will survive at such temperature are not known. Both survive at least a year at room temperature in the dried state[2],[39].

Both viruses are described as rather resistant to disinfectants; Virus A is not inactivated in 30 minutes by part per million free chlorine; virus B withstands a 1:2000 merthiolate solution or a 0.2 per cent solution of tricresol. Experimentally, virus B has been rendered inactive in serum by ultraviolet irradiation, although there is at present no method of irradiation of serum or plasma which is an absolute safeguard against virus B and at the same time does not alter the chemical and physical properties of the blood fraction[2],[39],[41],[42],[43]. Gamma globulin prepared by the cold ethonal fractionation method is apparently free from possible contamination by virus B, however[44].

There have been no satisfactory determinations made on virus B or virus B to quantitate the infective dose for humans; such experiments have indicated only the presence or absence of the virus. However, 50 cc. of a dilution of whole blood 1:1,000,000 has been shown infective, probably for virus B[2].

The challenge presented by viral hepatitis is extremely interesting to the virologist, and a number of workers in many laboratories here and abroad have devoted much of their professional lives to the problem. Still, there is much to learn about the ecology and pathogenesis of the disease, and there is much disagreement about certain of the epidemiological features. The diagnosis of cases in the clinical laboratory is still not absolute, although many investigative tools are available. Perhaps the future holds promise of vaccine to prevent hepatitis A, or of methods to neutralize or inactivate virus B in blood and blood products. Specific therapeutic measures to combat both infections may be forthcoming. Meanwhile, viral hepatitis is a mounting problem.

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Gynben in the Treatment of Vaginitis

THOMAS G. GREADY, JR., M.D.†
Houston, Texas

Research for an effective, all-purpose medication in the treatment of vaginitis has been conducted for years, and the fact that there are so many products on the market makes it obvious that as yet a perfect one has not been found.

The results with a preparation known as Gynben have been particularly encouraging.

METHOD OF STUDY

This study comprises 100 private patients who were carefully studied by wet saline smears, and by stained preparations and cultures for Monilia (Candida albicans) where indicated. Every case was followed for a minimum period of three months. Besides these 100 cases, some observations are made from clinical experience with this insert over a period of three years. The number of cases in this group is estimated at in excess of 500, but the records were not pulled and examined; so observations on this additional group must be classified as "clinical impressions."

MATERIALS

Gynben* is a solid vaginal insert with the following formula:

Diiodohydroxyquinoline	100 mg. (1½ grains)
Sulfadiazine	500 mg. (7½ grains)
Stilbestrol (Diethyl)	0.1 mg.
Sodium lauryl sulfate	0.54 mg.
Tartaric Acid	6.0 mg. (1-10 grain)
Boric acid	120 mg. (2 grains)
Dextrose	0.66 gm. (11 grains)
Lactose	0.66 gm. (11 grains)
Kaolin	0.66 gm. (11 grains)

The drugs present in the formula indicate a comprehensive usage.

Di-iodo-hydroxyquinoline is a fungicide and should be particularly useful against Monilia and to a somewhat less extent against the Trichomonas.

Sulfadiazine seems appropriate because of its effect against a large variety of mixed infections of the vagina.

Stilbestrol in the 0.1 mg. dosage is a most useful addition to a vaginal insert. Because of its local effect on the vaginal epithelium it should be of value in older women with atrophic vaginitis often associated with mixed bacterial infection. No evidence of a systemic effect, *i.e.* vaginal bleeding, has been observed.

Sodium laurel sulfate as a wetting agent facilitates the spreading of the medication to the more inaccessible crevices of the vagina. Recent experimental studies indicate that a wetting agent is almost essential if the treatment is to be effective.

The other elements seem useful only insofar as they help to maintain a normal vaginal flora, and in the mechanical integration of the insert.

The patient was instructed to take a hot douche each evening, using two quarts of warm water, and following this to insert one moistened Gynben high in the vaginal vault. Two variations in treatment were employed, as follows: 1) During the menstrual period this procedure was recommended twice daily. 2) Patients with Monilia were instructed to use one level tablespoonful of Tide (a detergent) to two quarts of warm water and follow this with a plain water douche before placing the insert in the vagina.

Treatment was continuous for 24 days, after which the patient was instructed to use the treatment during the last three days of the menstrual period and two days following the menses, through three more cycles.

RESULTS

The 100 cases were grouped as follows:

Monilia	48
Trichomonas	36
Atrophic bacterial vaginitis	15
Non-specific vaginitis (child aged 4)	1

Of the 48 cases of Monilia 47 were cured in 3 months (97 per cent).

Of the 36 cases of Trichomonas 28 were cured (77.7 per cent).

All of the 16 cases of bacterial and atrophic vaginitis, including the child responded to therapy (100 per cent).

Used indiscriminately (without microscopic diagnosis) for all types of vaginitis in this series there would have been a 91 per cent cure rate.

Most of the failures, it will be seen, were in the Trichomonas group. These were switched to other forms of medication, usually an arsenical, with excellent results.

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*Product of Bentex Pharmaceutical Company, Houston, Texas; R. Yates Dillard and Co., Memphis, Tenn.

The only failure in the Monilia group was probably due to a sensitivity to the drug.

COMMENT AND CLINICAL IMPRESSIONS

Gynben, though not perfect, is an excellent all-purpose vaginal insert and can be used safely.

Atrophic and bacterial vaginitis particularly in elderly people respond with almost 100 per cent cure. Overgrowth of Monilia has not been encountered as it often is where an antibiotic is used, probably because of the presence of the fungicide. Indeed it is extremely effective in the treatment of Monilia.

The recently described entity "Haemophilus Vaginalis vaginitis" has also responded well to this medication.

The compressed tablet is easily inserted into the vagina and is preferred by most patients to messy vaginal jellies.

A pad is sometimes useful to prevent staining of clothing but because of the irritating effect of the pad it is not recommended unless absolutely necessary. Vulvar scratching must be cautioned against in the early stages of treatment, and is best relieved by having the patient apply a wash cloth with cracked ice to the area instead of scratching.

Candida albicans or Monilia is more susceptible to the medication than is the Trichomonas.

Where Trichomonas vaginitis fails to respond to Gynben, the use of an arsenical insert will often effect a cure, if other foci have been eradicated.

In over 500 cases, the most frequent use of Gynben has been as a medication following cauterization of the cervix. Here it is useful in promoting healing by keeping down secondary infection and by estrogenic stimulation of the mucous membrane by local action of the stilbestrol. Particularly is it effective in banishing the disagreeable odor which otherwise accompanies the sloughing process.

Use of Gynben in infants and children with vaginitis has been gratifying, apparently due to the fact that such infections are usually bacterial, and the stilbestrol and the sulfadiazine in the tablet attack the condition in two ways: 1) stilbestrol by its estrogenic stimulation of the mucosa and 2) sulfadiazine by a direct attack on susceptible microorganisms. In gonorrheal vulvovaginitis in infants this treatment should be combined with penicillin parenterally.

In children two tablets were crushed and mixed with water in a cup. The resulting mixture was douched into the vagina with a rubber ear syringe, making certain some of the material remained in the vagina.

Sensitivity to the tablet was encountered and diagnosed in two patients. Apparently there are two ingredients in the tablet to which patients are sometimes allergic. One is the iodine in the di-iodo-hydroxyquinoline and the other is the sulfadiazine.

One patient complained of being nauseated when she used the inserts. Although only a minute amount of stilbestrol could be absorbed through the vaginal mucosa, the nausea was attributed to the stilbestrol since it would disappear each time the medication was discontinued.

Where a cervicitis was present part of the treatment consisted in electro-cauterization for eradication of this focus, along with the above-described treatment of the vaginitis. It was felt that this procedure greatly decreased the number of recurrences.

Sexual relations are interdicted during the first 10 days of treatment to minimize the possibility of reinfection from the marital partner. Actually the use of a rubber condom for an additional period of one month is also believed to have decreased the incidence of "ping-pong" infections.

Where recurrences are frequent and when all possible foci of infection including Skeen's glands, cervix and bladder have been ruled out in the female, an urological examination of the male is indicated.

CONCLUSIONS

1. A technique of management of vaginitis with Gynben and the results are presented.

2. Gynben is a useful, safe, vaginal medication and should appeal particularly to the physician who is not equipped for a microscopic study of the vaginal smear. It is effective (91 per cent) in practically all types of vaginitis.

3. Sensitivity to one or more of the ingredients can occur but it is rare and has not been serious.

4. The insert can be crushed and used in a water suspension in treating vaginitis in children.

Surgical Emergencies in the Infant Abdomen*

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The evaluation and diagnosis of acute abdominal distress in infants frequently proves to be a very difficult problem. Colic in the newborn is a fairly common occurrence and unfortunately this little fellow cannot tell us just how and where he hurts. Even as children get old enough to complain, the majority of causes of abdominal pain will be those other than surgical. There is usually very little clinical history to be offered by a concerned parent and the doctor has to rely primarily on objective physical findings. Our pediatric colleagues like to feature this as an advantage to their practice, whereas a general surgeon finds this a contrast to his usual adult practice. Because of his small size and limited resistance, body dynamics in the infant are rapidly altered. As vomiting depletes fluid and electrolytes, body temperature quickly rises. Crying enhances the collection of air in the gastrointestinal tract to produce abdominal distention. Early, and as accurate, diagnosis as possible is very important. Even if this cannot be done with certainty, the fundamental question must be decided as to whether the disorder is primarily a medical one, or signs of intestinal obstruction, peritonitis, bleeding or trauma indicate the need for immediate surgery.

The frequency of some of the more common specific surgical problems at a given age in the child's life may actually suggest the differential diagnosis. The majority of obstructions due to congenital causes will be noted during the first few days or the first week in the newborn. Pyloric stenosis characteristically manifests itself by the second or third week. Intussusception is more frequently found from six to 18 months than during any other time in life. Acute appendicitis, possibly but rarely seen before six months, is the most common lesion requiring abdominal surgery during childhood.

Because we must rely on objective physical findings, a thorough examination is mandatory. A child's behavior may tell us more than the obvious fact that he is "just sick." Progressively less activity to the point of lethargy may suggest the degree of fever or fluid and electrolyte loss. He may lie quiet to protect an irritated abdomen or flex his thighs with rhythmic colicky pain. Careful examination of the ears, throat, chest and lymph nodes may suggest a primary source of symptoms. Gentle palpation of the abdomen for diffuse or localized muscle spasm, tenderness or mass, may be difficult but rewarding. Examination of the anus and rectum may reveal a congenital defect, fullness or a pelvic abscess, tenderness of appendicitis, or blood or mass from intussusception. The additional values of laboratory assistance, blood counts, urinalysis and x-rays, are relied upon to confirm or differentiate the diagnosis.

So-called medical or non-surgical causes for abdominal distress, vomiting and distention include the feeding problems or colic of infancy, reactions to birth trauma, pharyngitis, gastro-enteritis, mesenteric adenitis, acute genito-urinary infection, and pneumonia or respiratory infections. Frequent reexaminations and close observation for change may be necessary to settle the fundamental problem "Is surgery necessary?".

PYLORIC STENOSIS

The most common condition requiring surgery in infancy is pyloric stenosis. The circular smooth muscle fibers of the pylorus hypertrophy and multiply to form a fusiform mass which obstructs its lumen. Though feedings may pass for the first few weeks, the trauma of milk curds leads to mucosal edema and complete obstruction by the second to third week. Vomiting without bile, frequently projectory, failure to gain weight, less frequent stools, dehydration, starvation, and alkalosis are apt to follow. Examination of the abdomen during or after feeding will reveal epigastric waves across a distended stomach. In many cases a palpable pyloric tumor can be felt in the right upper quadrant. The absence of bile excludes the possibility of lower duodenal obstruction. Other differential diagnostic problems include pylorospasm, chalasia of the esophagus and poor feeding regimens. Abdominal x-ray will reveal an enlarged stomach with a rounded distal end and abnormal retention of contrast material after three hours.

Surgical treatment of this condition is very gratifying. Through a short transverse grid-iron type incision, the thickened pylorus can be delivered, and with a small scalpel or blunt instrument the circular muscle fibers are divided longitudinally, taking care not to enter the mucosa and allowing it to bulge into the opening. A complication of this procedure can be minimized by the recognition and closure by inversion of any perforation of the mucosa. Small amounts of glucose or formula can be fed this infant beginning four to six hours after surgery, and the patient is afforded lasting relief of symptoms.

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CONGENITAL OBSTRUCTION

Intestinal obstruction in the newborn is nearly always due to some congenital anomaly. Unfortunately, a high percentage of these infants have other anomalies elsewhere in the body, a point to be remembered when the problem presents itself, and a point of explanation why many do not survive despite diligent surgical care.

The epithelium of the intestine rapidly proliferates about the fifth week of fetal life to completely obliterate the intestine from the pylorus to the colon. Several weeks later, vacuoles begin to appear in this solid mass of cells, and these cystic spaces coalesce to reestablish the intestinal lumen. An arrest in this development results in atresia, if discontinuity of two intestinal limbs occurs. or stenosis, if the hollow tube fails to attain its normal diameter or forms a partial diaphragm across the lumen.

Atresia and stenosis occur most frequently in the duodenum and ileum and obstruction manifests symptoms on the first day of life. Vomiting during or after feeding is progressive to the point of rapid dehydration. Because obstruction above the ampulla of Vater is rare, vomitus characteristically contains bile, a factor of importance in ruling out esophageal atresia and pyloric stenosis. Vomiting of coffee-ground or bloody material by a newborn is strongly suggestive of intrinsic duodenal obstruction. If the obstruction is high, as the duodenum, vomiting will appear earlier and occur at the time of feeding. Abdominal distention will not be so marked and waves may be noted moving from left to right across the epigastrium. If the obstruction is low, generalized abdominal distention and visible peristalsis will be prominent. Stools in these infants can be misleading and resemble normal meconium. Farber's test for cornified epithelial cells normally swallowed with amniotic fluid in utero will reveal the absence of these if obstruction exists.

A plain film of the abdomen is usually the only x-ray necessary to diagnose duodenal obstruction for it will reveal a markedly dilated stomach and first portion of the duodenum. A similar picture is found in cases of extrinsic duodenal obstruction caused by malrotation of the colon or annular growth of the pancreas, to be discussed later. If the obstruction is lower, multiple distended loops of small bowel will be noted. Scattered calcific shadows about the abdomen are indicative of fetal peritonitis following perforation in utero.

The clinical course of these infants is one of rapid and progressive deterioration, so early diagnosis and early operation are mandatory. Anastomosis of the duodenum above and below the site of obstruction or duodenum with the jejunum are preferable to anastomosis with the stomach for the latter procedure allows food to pass by the pylorus and churn back and forth in the blind duodenal pouch, producing anorexia, nausea and abdominal discomfort, usually requiring secondary surgery.

DUPLICATION

Other congenital defects believed to arise on the basis of maldevelopment of the fetal intestinal lumen are the duplications, or enteric or enterogenous cysts. Another theory for their origin is that they represent diverticula from the fetal alimentary tract. They can be found anywhere from the esophagus to the colon, are intimately attached to some portion of the alimentary tube, and are lined by a coat of smooth muscle and mucous membrane. They vary in size and shape and may connect with the normal intestinal tract or represent adjacent cysts. Symptoms of pain and bleeding may arise from ulceration, however, in infants intestinal obstruction is more likely to occur. Duplications are usually found in infancy and childhood, but may become symptomatic in any period of life.

The cystic structure and adjacent intestine have a common wall so that it is difficult to separate one from the other without injuring the bowel. A common blood supply may also necessitate removal of the normal adjacent bowel. Treatment of choice, therefore, is resection and primary anastomosis or repair of adjacent structure.

MALROTATION

During the sixth to the tenth weeks in the embryo, the alimentary tract grows faster than the surrounding abdominal cavity, thereby forcing a portion of the midgut (that segment supplied by the superior mesenteric artery) into the base of the umbilical cord. At about ten weeks, the cavity is normally able to accommodate this bowel and it recedes into the abdomen, rotating in a counterclockwise direction about the axis of the artery. At first, the midgut (the terminal ileum, cecum and proximal colon) lies in the left side of the abdomen, and as normal rotation continues the cecum passes to the right upper quadrant, then to the right lower quadrant where its mesentery becomes anchored. Arrests in this normal development may result in incomplete rotation of the cecum or a completely rotated cecum which remains unattached or mobile.

Malrotation may become symptomatic in the infant in either or both of two uncommon but recognizable forms of pathology. With incomplete rotation, the cecum commonly stops just below the stomach, and reflected bands of peritoneum pass across the descending duodenum to attach to the posteriolateral wall, producing extrinsic obstruction. Secondly, because the mesentery of the intestine lacks a normal posterior fixation, the entire mass can easily twist, usually clockwise, on the arterial axis to produce a volvulus of the entire small intestine.

Symptoms of this condition are usually manifest within the first few weeks of life. Diagnostic signs of vomiting bile and epigastric distention are identical to those discussed for intrinsic duodenal obstruction due to atresia or stenosis, and indicate the need for immediate surgery. If the child's condition is less severe and diagnosis uncertain, a barium instillation of the stomach may reveal the duodenal obstruction, or a barium enema will reveal the incompletely rotated colon in the left side of the abdomen.

On exploration of the abdomen, the proximal colon, cecum, or attached peritoneal bands may be found obstructing the descending duodenum. By detaching the posterior parietal peritoneum to the right of the cecum and displacing it into the left abdomen, all pressure over the duodenum can be relieved. It is unnecessary and unwise to attempt to attach the cecum in its normal anatomic location. Because both of these complications can be noted in the same patient, the entire midgut should be carefully examined for possibility of a volvulus. Examination and detorsion, if necessary, can best be done by delivering the bowel from the abdomen. Prophylactic appendectomy at this time is unwise. If operation has been carried out properly, recurrence of volvulus is unlikely to occur and duodenal obstruction will be permanently relieved.

IMPERFORATE ANUS

Malformations of the anus and rectum follow arrests or anomalies of development in the seventh or eighth embryonic weeks as the genitourinary apparatus or terminal colon fail to assume normal relations with the cloaca and the proctodeum, or anal dimple. Four distinct types may arise, with or without urinary fistulas.

Type 1—Stenosis at the anus

Type 2—Imperforate anus with persistent membrane

Type 3—Imperforate anus with a blind rectal pouch

Type 4—Normal anus and anal pouch with blind colon pouch

The majority of fistulas occur in Type 3 anomalies.

About three-fourths of these infants have complete obstruction from birth. If the diagnosis is not made with the original examination, it is soon noted that stools or meconium do not pass or that a rectal temperature cannot be taken. Abdominal distention follows rapidly if an adequate fistula does not exist. Small ribbon-like stools may suggest stenosis. Dark discoloration above an imperforate anal membrane will indicate the presence of a thin diaphragm, which may bulge as the baby cries or strains. Meconium may pass from the vagina if a patent fistula exists in the female. Dark urine or flatus through the urethra may be noted if a fistula exists in the male. A digital examination of the anal pouch will confirm intestinal obstruction due to a Type 4 or rectal obstruction. There is usually a small ridge or dimple on the perineum where the anus should be, indicating a vestige of the external sphincter.

It is important in planning surgery to establish the level of the rectal bulb or the type of malformation that exists. There is usually enough gas in the colon after 24 hours that when the colon is held inverted and a metal marker is placed over the anal dimple, the gas will distend the distal colon and the distance of the congenital defect can be measured. If a fistula communicates with the bladder, air may be noted on a lateral x-ray. If a visible fistula is patent and can be cannulated with a small catheter from the perineum or the female vagina, lipiodol is useful in demonstrating the rectal pouch and the length of the fistula.

Repeated dilatations of the stenotic anus are usually all that will be required to obtain normal anal function in Type 1 deformities. These may be necessary for a matter of months and can be done by the parent. A cruciate incision of a persistent membrane and skin, and subsequent dilatations are necessary to correct Type 2 deformities.

The height of the rectal pouch in Type 3 lesions determines the necessary approach. If its terminal end is within two centimeters of the anal skin, repair can be carried out from below in much the same manner as described for Type 2. If the rectum is at a higher level and the general condition of the child is good, a combined approach through the abdomen and from the perineum is indicated, with correction accomplished by a pull-through reconstruction of the anus. If the birth weight of the child is less than six pounds and/or other compromising conditions exist, it may be advisable to create a preliminary colostomy to relieve the colonic obstruction, and follow with definitive surgery in six to 12 months. Type 4 lesions will always require the combined abdominoperineal approach.

The large patent fistula in the female infant or a perineal fistula in a male can be dilated with urethral sounds and utilized to delay major surgical correction, however, it should be remembered that such a course leads to increased fibrosis and size of the fistula which may complicate later repair.

Associated fistulas can be successfully treated at the time the imperforate anus is repaired. The tract is carefully dissected from adjacent structures and divided. The distal end entering the bladder, vagina, urethra or perineum is suitably closed and the fistulous end of the rectum can be pulled out beyond skin level so that normal rectal wall can be anchored to subcutaneous tissues before the fistula and any excess rectal tissue is excised. As a normal segment of bowel is pulled down over the previous fistulous site, it is almost impossible for the fistula to recur.

Neat approximation of mucous membrane and skin without tension results in a soft pliable anus. Approximately one-third of these children can be taught normal functional bowel control. In another third, functional status is fair to satisfactory, and in the remaining third, the opening functions as a perineal colostomy. Actual control is believed to represent a combination of levator and sphincter tone plus voluntary control.

BILIARY ATRESIA

Jaundice in infancy presents the pediatrician and surgeon with a difficult differential diagnosis. There is complete agreement that all jaundiced babies should be explored sometime within the first three months, or as soon as icterus neonatorum, erythroblastosis fetalis, syphilis, sepsis, virus hepatitis, and obstruction due to inspissated bile or mucus can be ruled out.

As in the case of intestinal development, biliary ducts go through the proliferative solid phase in embryonic development, and an arrest at this stage with failure of complete lumen formation can result in biliary atresia with resultant obstructive jaundice. The position and extent of such obliteration naturally will determine operability and cure. Gross has found that only 18 per cent of these infants can be offered some anastomotic repair. Atresias involving the intrahepatic ducts offer a poor prognosis. If a blind common hepatic or common bile duct exists, either of these or a communicating gallbladder may be utilized for anastomosis to the duodenum.

ANNULAR PANCREAS

The pancreas may offer two bizarre and fortunately rare forms of pathology which may be manifest in infancy—a congenital annular development with duodenal obstruction, and hypoglycemia and hyperinsulinism associated with islet cell hyperplasia.

The first of the anomalies is believed to be due to a failure of the ventral or lower limb of the pancreas and its duct to rotate with the duodenum, so that it is left sweeping around the anterior and right lateral walls of the intestine. After birth this may produce complete duodenal obstruction in the newborn, or produce a degree of blockage which is asymptomatic until later years or even throughout life. The clinical picture in the infant is similar to that described for duodenal obstruction due to atresia or to malrotation of the midgut. The picture may be further complicated by jaundice. Pancreatitis, sometimes seen in adults, has not been described in children.

Because of the marked variation in the development and distribution of the pancreatic ducts, and the complication of fibrous constriction of the duodenum, a direct attack on the pancreatic ring is unwise. Relief of obstruction by an anastomosis of the anterior wall of the dilated duodenum with the jejunum is the operation of choice.

HYPERINSULINISM

Functional hypoglycemia is not rare during the first two weeks of life, however, the blood sugar level is usually stabilized after this period. Any child presenting a clinical picture of bouts of weakness, stupor, drowsiness, pallor, disorientation, twitches or convulsions should be investigated for hyperinsulinism. Whipple's diagnostic triad includes attacks during fasting period following physical or mental effort, the finding of a blood sugar level of less than 50 milligrams per cent and the therapeutic relief of symptoms by administration of sugar by mouth or vein.

Seventy-five per cent of organic hypoglycemia in adults is due to benign or malignant tumors of the islets of the pancreas. In infancy and childhood, however, the opportunity to find an adenoma grossly or microscopically is very slim, and it is assumed that the hyperinsulinism is due to a relative generalized hyperplasia of islet cells throughout the gland.

Once the condition is diagnosed, early treatment is indicated to prevent permanent brain damage. Cases which do not respond to immediate medical therapy should be subjected to laparotomy. If an adenoma is not found, an 80 per cent resection of the pancreas is advised. It is relatively safe, prevents further hypoglycemic attacks, unnecessary obesity, and possible permanent central nervous system damage.

OMPHALOCELE

Should the abdominal cavity fail to enlarge enough to accommodate the midgut by ten or 12 weeks in the embryo, a portion of the intestine and possibly other viscera may remain in this location. At birth a large peritoneal sac, not covered by skin but having a thin translucent outer layer of amniotic membrane, will be found in the umbilical area. Less severe weaknesses of this portion of the abdominal wall, covered by skin, are observed in umbilical hernias. The omphalocele is an indication for immediate and radical surgical repair for the thin sac is vulnerable to rupture or spreading infection within a matter of hours after birth. An associated point of value of early operation is the fact that the alimentary tract is not yet distended by gas and food. As other deformities at birth, this condition is frequently associated with other congenital anomalies and frequently with malrotation of the intestine and colon. Gross reports only 66 per cent survivors of all cases accepted for surgery. If the sac is small—less than seven centimeters in diameter—and unassociated with other anomalies, the chance of survival is greater—about 75 per cent. Thereafter, the larger the sac the smaller the chance for salvage.

If the sac is small and the viscera can be replaced without creating respiratory, vascular, or intestinal obstructive symptoms, a one-stage repair can be carried out immediately after birth. Umbilical vessels are carefully ligated, the sac is cut away from adjacent skin, muscle and fascial layers are freed around the ring, and primary hernia repair is carried out. If the sac is large, a two-stage procedure may be indicated to permit the abdominal cavity to grow large enough to grant admission to the displaced viscera. In this case the sac is carefully cleansed with dilute iodine solution, the stump of the umbilical cord is removed to cover the herniated mass with a more protective surface. The second stage repair can then be carried out in from three to 19 months.

MECKEL'S DIVERTICULUM

In the early embryo the ileum has a wide free communication with the yolk sac known as the vitelline duct, located 18 to 36 inches from the ileocecal valve. Normally this reduces to a narrow cord which atrophies, so that the intestine loses its connection with the umbilicus. In two to three per cent of births an outpocketing from the ileum persists as a Meckel's diverticulum. This has been said to be the most common congenital anomaly of the entire intestinal tract. Symptoms of complication may be manifest at any age, from infancy on; however, they are most frequent during the first two years of life.

The diverticulum may be lined by any glandular tissue normally found along the gastro-intestinal tract. This is most frequently ileal or gastric mucosa. In infants and children, bleeding is the most frequent symptom of complication and this is apt to be profuse—a contrast to the spotty bleeding or occasional dark stool due to fissures or polyps. It is usually unassociated with pain—a point of differentiation from intussusception.

Acute Meckel's diverticulitis may simulate acute appendicitis. Should the gravity of the situation not be recognized perforation and gross peritonitis can rapidly follow because of its migratory position and absence of protecting omentum in young children. This pathology, as in the appendix, likely follows an obstructive process with secondary bacterial invasion, but may be attributable to ulceration of ileal mucosa, if functional gastric acid-producing mucosa is nearby.

Should the diverticulum join the ileum by a narrow pedicle, volvulus and infarction may occur.

In some children, repeated bouts of vague abdominal pain have been observed to vanish after discovery and removal of an otherwise uncomplicated Meckel's diverticulum.

The diverticulum has been observed to serve as a lead point for ileal intussusception with clinical signs indistinguishable from the so-called idiopathic intussusception as the mass progresses through the terminal ileum and colon.

Should a vestigal connection persist between the umbilicus and the ileum, it may serve as a fixed point or band to produce intestinal obstruction, either by crossing an innocent loop of bowel or by kinking the ileum at its base. If this vestige remains patent after birth, an umbilical sinus may discharge mucus or intestinal material. Intussusception of the ileum through this sinus to the umbilicus has been described.

Diverticulectomy by oblique amputation of the base and closure with a single layer of interrupted sutures is recommended. If the base is thickened, edematous or inflamed, a diamond-shaped excision of the adjacent ileal wall and transverse closure is advised. Prophylactic removal is advisable if a diverticulum is discovered during course of laparotomy for other pathology.

INTUSSUSCEPTION

Intussusception is the telescoping of a portion of intestine or colon into a more distal segment of bowel. Though uncommon in adults and newborns, it is one of the most frequent surgical emergencies in infants over six months of age. Seventy-five per cent of cases occur within the first year of life. While there is usually an exciting lesion or initiating point, as a polyp or Meckel's diverticulum, found in older children and adults, the cause is obscure in most infants. Suggested etiologic factors have been the change from a milk to a more solid diet, acute enteritis, mesenteric adenitis. The majority of infant intussusceptions begin in the ileum and telescope through the ileocecal valve into the colon.

Sudden onset of recurrent colicky pain, vomiting, a palpable abdominal mass, and passage of blood or "currant jelly" stools by rectum are the cardinal signs of this disorder. As the obstruction persists, signs of shock are added. Dance's sign is the term applied to the emptiness of the right lower quadrant as the cecum moves up into the ascending and transverse colon.

Plain films of the abdomen will show evidence of small bowel obstruction. A barium enema will reveal obstruction to the retrograde flow of barium, a cupping of the head of the barium as it meets the intussusceptum, and a thin coating of barium around the intussusceptum. In some early cases, the hydrostatic pressure of the barium by gravity may completely reduce the intussusception, as has been demonstrated by a large series of Ravitch and Morgan. Their criteria for a successful reduction are the observation of barium in the small bowel, disappearance of the abdominal mass, improved clinical appearance, and passage of feces, flatus or orally administered charcoal. They have stressed the point that the very factors which lead to gangrene also produce adhesions and irreducibility, thereby indicating the need for surgery. Though barium enema is a valuable diagnostic tool, others have criticized it as a means of definitive therapy because 1) in many children with a positive diagnosis and a narrow margin of reserve, operation which is inevitable, is unnecessarily delayed, 2) colonic inflation has limited effectiveness above the ileocecal valve, and an ileal portion or a second ileo-ileal intussusception may be left unreduced, and 3) existing pathology, as a Meckel's diverticulum or polyp may be overlooked, and serve as a focus for a subsequent attack.

In the majority of cases explored, manual reduction can be accomplished by gentle taxis, or retrograde milking of the bowel. If irreducible or intestine is irreparably damaged, or the child is critically ill, resection will be indicated. If surgery follows symptoms of short duration and child's general condition warrants, primary resection and anastomosis can be carried out. A child whose symptoms have been present for more than 24 hours is generally a poor surgical risk and should have no more surgery than is absolutely necessary. A two-stage exteriorization procedure as the Mickulicz may be initiated, with secondary closure in 48 hours or as soon as the child's condition stabilizes.

INCARCERATED HERNIA

Inguinal hernias are found quite frequently in newborns and during the first few months of life. Because of the marked incidence of complication of incarceration during the first year, the simplicity and psychological advantage of early elective repair, and the fact that large hernias are rarely cured spontaneously or with trusses, early repair of infant hernias is being advocated.

Signs of incarceration include the observation of a fretful child flexing the thighs on the abdomen, an elongated tender mass in the groin, and later, signs of intestinal obstruction. Fortunately, strangulation occurs rarely in small children. A large percentage of incarcerated hernias can be reduced within three to four hours with sedation, rest, and gentle manipulation. If this is not possible, immediate surgery is indicated. If reduction is accomplished, a delay of surgery for 24 to 48 hours will allow for tissue edema to subside, and correction should be carried out to avoid the risk of further incarceration.

ACUTE APPENDICITIS

Acute appendicitis is the most common lesion requiring intra-abdominal surgery in childhood.

The cardinal signs of right lower quadrant pain, nausea and vomiting, fever and localized tenderness, are similar to those noted in the adult; however, the morbidity is apt to be greater in small children. The appendix is larger with a thin wall and the mesoappendix longer, permitting a wide sweep in the abdomen. The omentum is thin and devoid of fat, and consequently a poor protection to limit infection. The diagnosis is apt to be obscured by simultaneous occurrence of childhood diseases. To avoid perforation and peritonitis, utmost clinical judgment is required.

MESENTERIC ADENITIS

Mesenteric lymphadenitis was listed among the non-surgical disorders, however many surgeons suggest, because this condition can so closely imitate acute appendicitis, it is a diagnosis that can be made with certainty only at the operating table. If the clinical signs indicate localized right lower quadrant pathology, and the diagnosis of acute appendicitis cannot be eliminated, laparotomy is indicated to avoid this risk.

Acute cholecystitis and peptic ulcer, though extremely rare in infancy and childhood, are seen, and must be kept in mind in making a diagnosis of abdominal disorder.

TRAUMA

A history of trauma to the abdomen, however, slight or remote, should be considered in differential diagnosis of abdominal symptoms. Though these conditions occur more frequently in older children and adults, one should be aware of the possibility of rupture of the spleen or liver, contusion of the kidney or pancreas and perforation of the urinary bladder, intestine or colon. Fixed or retroperitoneal hollow viscera or organs are particularly vulnerable to external trauma. Suspicion of leakage of any of the enzymatic digestive juices, urine, or feces, and hemorrhage are indications for prompt surgical exploration.

FOREIGN BODIES

Fortunately most objects that infants are able to swallow will pass spontaneously without harm through the gastro-intestinal tract. If they are large, sharp or irregular in contour, they may very likely lodge in the esophagus, and should be removed promptly by esophagoscopy. Of those which reach the stomach, over 90 per cent will progress to the anus without symptoms and elimination may not be recognized unless the stools are carefully searched. Transit time may vary from 24 hours to three or four weeks. Sharp or irregular objects, as pins and metal gadgets, must be followed with concern. Fortunately, the majority of all swallowed foreign bodies are detectable by x-ray, facilitating original localization and progress they may make. Abdominal exploration is indicated only if the object fails to progress, if it is unlikely that it would pass spontaneously or is apt to rupture the bowel, or if signs of obstruction, mediastinitis, peritonitis, or hemorrhage arise.

SUMMARY

1. Abdominal pain, tenderness and vomiting are observed with many medical or non-surgical disorders in infants.
2. When the possibility of a surgical disorder is observed, early evaluation, diagnosis and treatment are extremely important.
3. If a definite clinical diagnosis cannot be made, it is essential to solve the fundamental problem—"Do signs of intestinal obstruction, peritonitis, bleeding or trauma indicate a need for immediate surgery?".

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DISCUSSION

Dr. Paul B. Daron (Jackson)—I should like to confine my remarks to the management of intussusception. This is the most common surgical emergency of the abdomen seen during this period, the peak incidence occurring from the third to the eleventh months, and three-fourths of the cases occurring before the age of one year. Jonathan Hutchinson is credited with being the first to perform successful reduction of intussusception surgically in 1874. Since that time the leaning has been more and more toward surgical intervention. Although the Scandinavian and Australian authors had long been advocates of reduction by hydrostatic pressure, and in spite of the good results obtained by Mark Ravitch, the method has never gained wide acceptance in this country and is generally feared by most surgeons. In Gross's cases even a diagnostic barium enema is done only in 5 per cent.

The mortality rate from the intussusception in the past has been appalling. Kahle, in reviewing to compare statistics from different centers, particularly if there are disproportionate numbers of private and charity cases since mortality is always higher in the latter group. It is, also, seen in all the experiences at the Charity Hospital in New Orleans from 1904-1938, found 151 cases with an over-all mortality of 52 per cent. In the cases in which a resection had to be done, the mortality was much higher. The mortality at Boston Children's Hospital from 1908-1912 was reported as 59 per cent. However, all over the country survival rates have markedly improved from these early figures and today the child with intussusception stands a very good chance of recovery.

Everyone writing on the subject has stressed that the first 24 hours is the golden period. The mortality during this period is practically zero. After that time it rises quite sharply. Even as far back as the period between 1928-1939, Gross was able to report no mortality in 110 cases operated on in the first 24 hours of illness. By comparison the over-all mortality for that period was 14 per cent. From 1948-1950, 92 cases were treated in that same hospital without a single death. Not only has the surgical treatment improved but parents are bringing the child in earlier and doctors are becoming more aware of the disease and are getting surgery done faster.

Preoperative treatment of these cases has received more and more attention through the years. While no undue delay in operations is justified, a few hours spent in hydration of the patient, replacement of electrolytes, and in treatment of shock which was often seen in later cases has greatly reduced the mortality. Routinely the stomach is decompressed and body heat is conserved by wrapping the extremities. General anesthesia has obtained greater and greater favor and the use of a right rectus incision rather than a McBurney to obtain better exposure seems to be increasing. The use of antibiotics goes without saying. A gentle milking of the intussusceptum from the cecum or colon where it usually is lodged has always been the most frequently employed maneuver. With gentleness and persistence approximately 90 to 95 per cent of cases can be reduced in this way.

It is the case requiring resection of a nonreducible, badly traumatized or gangrenous bowel that most discussion is centered on at present. The mortality from resection of the infant bowel is still over 50 per cent in most centers. Primary anastomosis following resection has been done by Dennis in eight cases with survival in all eight. Swenson, also, advocates primary anastomosis following intestinal resection in childhood, favoring an aseptic one-layer end-to-end anastomosis. Gross is of the opinion that in the hands of most surgeons an exteriorization resection of the Mickulicz type is much safer. This offers the advantages of having abdominal wounds completely closed before the diseased intestine is cut away, thus avoiding any chance of soiling the peritoneal cavity. The loss of ileal contents is cut down by crushing the spur of the anastomosis within two or three days, and the double-barreled ileostomy or ileocolostomy can be closed in about one week. It is wise not to do any procedure that does not absolutely have to be done at the time of surgery. If the appendix is acutely inflamed or if there is a Meckel's diverticulum which is gangrenous, or if there is a large polyp obstructing the lumen of the ileum, these processes obviously will have to be resected; however, if removal of such a process is not urgent, it should be left for removal at a later time. As has been stressed by Gross and others, the traumatized bowel does not withstand infection well. One should avoid entering it if at all possible. While a simple appendectomy can occasionally be done in early and easily reduced cases, such a procedure is fraught with considerable hazard and as a matter of routine practice should be condemned. Peritonitis which is practically impossible to control may well be started in this way. Any attempt at "tacking up" the bowel with the hope of preventing recurrence is not only futile but dangerous. There were only 2 per cent recurrences in the 702 cases in Gross's series.

While there has been marked improvement in the mortality figures, particularly during the last 10 years, and although the results at the Boston City Hospital have been exceptionally fine, results in other large centers still leave much to be desired. Kahle and Thompson reporting a series of cases in Charity Hospital in New Orleans, for the period 1939-1949, have 25.9 per cent deaths in 54 cases. In a smaller series from 1950-1952, 17.6 per cent deaths were reported from this same institution. Benson in Detroit reports 20 per cent mortality in five infants requiring resection for irreducible intussusception and no deaths in 23 others operated on in the three and one-half years preceding his report (1950). Chaffin reports 143 cases treated in Children's Hospital, Los Angeles, with 4.8 per cent mortality. The average duration of symptoms in that series was 28 hours. Goldberg from the Department of Surgery at Yale reported 2.7 per cent deaths in 37 cases treated from 1942-1953. However, it is not entirely fair to compare statistics, even though mortalities have lowered considerably during the past few years. The important thing is that early treatment gives the best chance for survival. Any improvement in this regard must represent a combined effort on the part of the physician and surgeon.

Acute Obstructions of the Colon*

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Acute intestinal obstruction of the colon is a relatively infrequent disorder which still carries an excessively high mortality rate. Michel[1] in a comprehensive report of 200 cases from the New Orleans hospitals noted that no one surgeon had had the opportunity of handling more than a few of these serious cases. Because of these two facts it appeared worthwhile to report our experience in a small community hospital with this grave condition.

In a six-year period we operated on 14 cases of acute colon obstruction from various causes with an over-all mortality rate of 28.5 per cent. Experience gained from these cases forms the basis of this report.

The etiology of acute obstruction of the colon is varied, but the most common cause is primary carcinoma of the colon which accounts for 9 out of 10 cases of this condition. The next most frequent cause is volvulus either of the sigmoid, which is most common, or the cecum or transverse colon which are progressively more uncommon. Diverticulitis comprises the third most frequent cause of obstruction of the colon. Other rarer disorders are bands, adhesions, obturation obstructions, colocolic intussusceptions, incarcerated hernias, and gynecologic diseases. Our cases were 7 of carcinoma, 2 of volvulus of the sigmoid, 2 obturation obstructions due to spasm, and 1 each of carcinoma of the ovary, ruptured diverticulitis, and impassible stricture at the anus.

The incidence is about 1 case of colon obstruction to 6 cases of small bowel obstruction. As carcinoma and diverticulitis account for a large proportion of these cases it is obvious that the condition occurs much more commonly in advancing years. Volvulus of the sigmoid also rarely occurs in young individuals. In Michel's[1] 200 cases 77 per cent were above 50 years of age and 42 per cent were over 70 years of age. The ages in our series range from 38 to 80 years with only one under 50 and 7 over 70. The four deaths were aged 69, 80, and 2, 77 years.

Diagnosis: The diagnosis of carcinoma of the colon should be made or strongly suspected from the history prior to complete obstruction provided of course the patient presents himself to his physician. The diagnostic triad of colicky abdominal pain, change in bowel habits, as increasing constipation, alternating constipation and diarrhea, or diarrhea, and the passing of mucus or blood-stained mucus or blood per rectum is invariably present in some degree. In diverticulitis there is a somewhat similar picture plus evidences of infection, with fever, leukocytosis and tenderness added. This condition usually occurs and recurs in attacks of more or less severity preceding the acute obstruction. Volvulus of the sigmoid is often recurrent, usually comes on suddenly and progresses rapidly with tremendous abdominal distention.

The major difficulty in diagnosing acute obstruction of the colon arises from a failure on the part of the observer adequately to distinguish between intestinal obstruction of the small bowel and of the large. The difficulties are further increased by the age and general infirmity of the patients. The cornerstone of the diagnosis of intestinal obstruction of the colon is the same as for small bowel obstruction, namely intestinal colic synchronous with audible peristaltic rushes. There is this difference, however. In the small bowel the pain occurs at much more frequent intervals than in the large bowel and it requires prolonged periods of auscultation to illicit this sign in the colon. Vomiting in obstruction of the colon may be entirely absent and if present occurs much later than in small bowel obstructions. As a result the electrolyte deficiency so common in ileal obstructions are rarely seen in obstructions of the large bowel, and dehydration, and oliguria are not prominent features. Physical examination usually reveals distention to some degree although again this may be absent in obstructions in the right colon in the presence of a competent ileocecal valve. Any patient with sudden tremendous distention of the abdomen should be suspected of having a volvulus of the sigmoid. Tenderness is not usually present and when present usually is in the right lower quadrant over the cecum where it constitutes a grave prognostic sign. Masses are rarely felt because of the distention present. X-ray examination of the abdomen in two views is a most helpful diagnostic aid and one can usually tell that the obstruction is in the colon and have some idea, in most cases, as to its location. However, dilatation of the small bowel and the presence of gas in the distal colon does not preclude the diagnosis of obstruction of the colon. In the first instance the ileocecal valve may be incompetent and the ileum distended with fluid and air as a reflux from the colon. Air in the distal colon beyond the point of obstruction may be present as a result of repeated enemas that usually are given to or taken by these patients. Digital examination of the rectum is usually unrewarding but occasionally a low growing tumor in the sigmoid may be felt. Tumors of the rectum are rarely the cause of acute obstruction of the colon. However, in our series, one was a result of a stricture of the anus following a pull-through operation for cancer of the rectum and another, a case of volvulus of the sigmoid, was precipitated by an invasion of the rectum with complete occlusion by carcinoma of the cervix. Sigmoidoscopic examination should always be done and occasionally tumors of the rectosigmoid junction may be seen and biopsied. The most important single diagnostic tool in lesions of the colon whether completely obstructed, partially obstructed, or unobstructed is a well performed and interpreted barium enema x-ray. No examination of a patient complaining of chronic abdominal pain, change in bowel habits or passage of blood or mucus from the rectum can be considered complete without such a study. The fact that other more obvious causes for the melena and other symptoms may be at hand, as, bleeding internal hemorrhoids and chronic amebiasis, do not exclude the possibility of cancer of the colon. In the past two years I have seen 4 patients who had been treated for sometime for chronic amebiasis, which they undoubtedly had, who also had a cancer of the colon. One of the cases of acute obstruction in my small series had been under treatment for intestinal amebiasis for the preceding three months. There is still some confusion as to the danger of barium enema examination in obstructive lesions of the colon because of the fear of converting an almost obstructing lesion into a completely obstructing one. Maingot[2] in his latest book cites this possibility as a disadvantage of the use of barium enemas. Further confusion is added with the fact that barium by mouth is always contraindicated in possible obstructions of the small intestine or of the large. Michel[1], on whose report it is obvious that I have drawn heavily, reports no instance in the 200 cases previously referred to, in which any difficulty has resulted from a barium enema examination. This study was not used in all my cases and contributed mistakes in more than one. After successful decompression of obstructive lesions in the colon by transverse colostomy it is helpful, before definitive excision or exploration is made, to have additional barium enema studies. If after all efforts to make a diagnosis fail then abdominal exploration through ample incision should be made in order to find the true cause of the intra-abdominal difficulty.

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Preoperative diagnosis of obstruction was made in all 14 cases and was correctly placed in the colon in 13 cases. One of the two cases of volvulus was operated on with a diagnosis of incarcerated umbilical hernia with small bowel obstruction. The type or cause of the obstruction was not appreciated in two other instances—both elderly females with obstruction due to fecal impaction and spasm in the region of the splenic flexure. In one a barium enema was reported as showing carcinoma of the colon. In the other no barium enema was done. The other 11 cases were correctly diagnosed.

Treatment: Intubation of the small bowel has no place in the treatment of obstruction of the colon except as an adjunct measure. In 1939 Wangensteen[3] and his associates warned that the use of intestinal intubation was dangerous in an attempt to determine whether or not a patient with any type of obstruction may or may not need surgery.

The relief of the obstruction in volvulus of the sigmoid by the passage of a rectal tube through a sigmoidoscope is a well-documented procedure allowing elective resection of the sigmoid to be carried out in a non-obstructed patient. However, this is not entirely without danger as unsuspected gangrene of the obstructed sigmoid loop does result in fatality if not operated on immediately. This method was not used in the two cases of volvulus in my series because in the first case there was an obstruction of the rectum. And in the second case the condition was not suspected prior to operation.

Primary resection of the obstructing lesion is rarely indicated except in the occasional early obstruction of the right half of the colon. Maingot[2] advocates primary resection in these cases provided the distention is not too great, the general condition of the patient is good and there is no spread. He quotes Wangensteen as having the same opinion. In the usual case, however, primary resection for all acute obstructions of the colon should be strongly resisted except in the case of a gangrenous volvulus where obviously there is no other choice. Surgical decompression of the distended obstructed colon is the treatment of choice. It is the general consensus that transverse colostomy preferably on the right is the best operation. In spite of earlier tecahings and the recent paper by Hunt[4] to the contrary, cecostomy is not considered the best method of decompressing the cecum where it can not be brought to the skin surface, and the fact that complete diversion of the fecal stream can not be obtained. In obstruction of the right half of the colon cecostomy may have a place. However, it would seem that in these circumstances an ileotransverse colostomy with or without a tube ileostomy threaded through the ileocecal valve would be the operation of choice. In those instances where the diagnosis is not in doubt it is particularly helpful to do a right transverse colostomy through a small transverse incision directly over the inflated colon without general abdominal exploration. This gut should be decompressed by needle aspiration after closure of the abdominal incision and a tube can be threaded through a small incision prior to complete division of the bowel one or two days later. Where there is doubt as to the true nature of the obstruction or its location the loop colostomy should be done after a thorough exploration of the abdomen through a long left vertical incision.

Transverse colostomy as a blind procedure was done in seven cases—six carcinoma of the left colon and one spasm and fecal impaction. There were two deaths: one in an 80-year-old female three days after decompression and one in a 77-year-old white male with cancer four days after closure of colostomy of a C.V.A.

Caecostomy was done twice, one in a 77-year-old female with spasm and impaction and one in a severe cirrhotic with obstruction at the hepatic flexure from cancer. Both recovered, but the latter case was not well deflated and a right hemicolectomy was delayed and finally done in the presence of a poorly prepared gut.

Three patients had transverse colostomy after general exploration: one carcinoma of the ovary and one diverticulitis with rupture. Both died in the early postoperative course. The patient with stricture of the anus following a pull through operation for carcinoma of the rectum, done elsewhere, recovered. One case of volvulus of the sigmoid was treated by resection and double-barrelled colostomy as she had extension of carcinoma of the cervix to the rectum. The other was untwisted and replaced as the patient was a severe hypertensive with hemiplegia and was not a good candidate for resection. Both recovered to die within 18 months of unrelated diseases.

Errors in the diagnosis and treatment of acute obstructive lesions of the colon are always grave and often fatal. This is true because any acute obstruction of the colon due to carcinoma already means that a serious error of diagnosis has been made, as carcinoma of the colon should be diagnosed before obstruction exists. The nature of the disease causing the obstruction, plus the generally poor physical status of the patient, leaves a very thin margin in which the patient can successfully tolerate further errors.

It might be considered helpful to enumerate some of the more common errors made in this condition:

1.) Failure to examine adequately patients complaining of abdominal pain, passage of blood or mucus or change in bowel habits by sigmoidoscopy and barium enema x-rays.

2.) Failure to follow through on barium enema x-rays once a decision to have such an examination has been made. It is my opinion that radiologists receiving a request for barium enema examination should not give a report on improperly prepared colons, but should assume the responsibility for giving the patient instructions and further appointments so that a proper diagnosis and report can be given the referring physician. Where doubt exists and a strong suspicion of space occupying lesions of the colon are present, the attending physician should not be satisfied with one negative examination.

3.) A tendency to ascribe to relatively unimportant conditions, such as internal hemorrhoids and chronic amebiasis, the passage of blood or mucus in the stool. Both of these conditions are relatively common particularly in later life and more particularly in this part of the country. Their co-existence with carcinoma of the colon should constantly be kept in mind, and one should not operate for hemorrhoids nor prescribe treatment for intestinal amebiasis without sigmoidoscopic and barium enema examinations properly given and interpreted.

4.) Failure to use barium enema x-ray examinations as a diagnostic tool in all suspected cases of intestinal obstructions. The absence of any ill effects of such study has been pointed out.

5.) Failure to make a sharp differentiation between acute obstructions of the small intestine and of the large intestine. The use of long intra-intestinal tubes in the treatment of small bowel obstruction is not under consideration here. This method of treatment has no place in acute obstructions of the colon except as an adjuvant to surgery.

6.) Failure to recognize the fact that acute obstruction of the colon is an abdominal emergency requiring prompt action on the part of the surgeon, as perforations can and do occur, and are considered the usual cause of death in neglected cases. The site of perforation is usually in the cecum as this part of the gut has the largest diameter and the thinnest wall.

If the above points are kept constantly in mind and applied when indicated the mortality from this condition could be materially reduced.

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DISCUSSION

Dr. Edward C. Hamilton (Gulfport)—I find it rather difficult to elaborate on Dr. Floyd's comprehensive discussion of acute colon obstruction. However, his report is limited to a consideration of this condition as pertains to adults, usually elderly adults. Acute colon obstruction also occurs not infrequently in the newborn and in children. Its prompt diagnosis and early treatment are no less important in these groups than in adults.

In the newborn, the leading cause of acute obstruction of the large bowel is one or another of the varieties of imperforate anus. A definitive abdomino-perineal procedure is well tolerated by these babies and probably should nearly always be done. Other causes, such as atresia, reduplication, and the like, are rare.

In older children, the foremost cause of acute obstruction of the colon is intussusception, commonly ileo-cecal. While many of these may be successfully reduced by means of enemata, exploration is preferable unless gangrene can be absolutely excluded. Dr. Martin will probably elaborate on this subject later in the afternoon.

In adults, there is little doubt that carcinoma is the principal cause of obstruction of the large bowel. Such etiology is implicated in 50 per cent of Dr. Floyd's series, and is reported to constitute an even greater proportion of some larger series. However, as pointed out, it is a late manifestation of the disease, being found in only 5-25 per cent of cases of carcinoma of the colon.

The preponderant incidence of volvulus as a cause of acute colon obstruction among Scandinavian and Eastern European populations, reported as high as 50 per cent, is interesting. The generally accepted figure for the United States is 10 per cent, although a 20 per cent incidence of volvulus as a cause of acute large bowel obstruction was found in the hospitals of New Orleans by Michel and McCafferty in 1948.

Strangulated external hernia is listed by Dr. Floyd as a relatively minor cause of large bowel obstruction. However, 13 cases operated on at the University of Pennsylvania hospital between 1940-1950 were analyzed as follows:

Carcinoma	6
External hernia	5
Volvulus	1
Stricture	1

Therapeutically, I concur with Dr. Floyd that a two-stage approach is generally the wiser course of action. While cecostomy is occasionally valuable for initial decompression, colostomy is the more universally satisfactory method. One must be certain, however, that volvulus is not present, for in this closed-loop type obstruction, colostomy alone is entirely inadequate treatment, even temporarily.

As a technically facile, completely diverting, yet easily repaired method of loop colostomy, the two-rod technique can be highly recommended.

It is not enough for man to find religion, and to quote its text and say its prayers. He must learn the lessons of Scripture — and weave them into the warp and the woof of everyday life and build a philosophy as tightly woven as that of the work-harder-and-squeeze-the-minutes-tighter era.

Amebiasis*

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THE IMPRESSION of the practicing physician of amebiasis has undergone considerable change during the past two decades. We are now aware that this entity is the underlying cause of a great variety of complaints and illnesses.

During the past few years diagnostic procedures have been developed for more efficient treatment of amebiasis. To my knowledge there has been no recent paper on amebiasis presented to this society and I feel that re-evaluation of this problem is timely.

What does the term, amebiasis, imply? Faust defines amebiasis as "an infectious, commonly chronic, non-inflammatory, frequently afebrile disease primarily involving the wall of the large intestine but at times extending to other soft tissues of the body."

The etiologic agent of amebiasis is the Endomaeba histolytica. It has five successive stages in its life cycle and all five stages of this cycle occur within the intestine.

The trophozoite is the active multiplying stage that invades tissue by pseudopodial motion and produces lesions. Multiplication results from binary fission and under optimum conditions occurs every few hours. As the stool becomes dehydrated in the colon, the Endomaeba histolytica loses its pseudopodial form and progresses through the rounding formation or precystic stage into the cystic stage at which time it is encysted with a hard membrane. As such it is passed with the stool or in the stool from the rectum and it is in this cystic stage that it is transferred by ingestion from one person to another. After being ingested and reaching a level in the gastro-intestinal tract, the small intestine, where the pH is neutral or slightly alkaline the organism escapes its cyst and becomes active again as a metacyst and by further division becomes a metacystic trophozoite. Then passing on into the large bowel it completes its cycle and again infects tissue forming an amebic ulcer.

Transmission of Endomaeba histolytica is accomplished only when viable cysts are ingested. Sources for transmission of the encysted forms are many and include food, namely contaminated raw vegetables and fruit grown on land fertilized with human excreta, or foods contaminated by food handlers who are not clean in their personal toilet after defecation.

Contaminated water supplies are also known sources of infection. The most common example being the epidemic occurring in a Chicago hotel during the 1933 World Fair. Insect vectors should also be mentioned as transmission agents.

As a rule the usual case of amebiasis is the result of infection from a small number of cysts. This infection may present symptomatic infection or it may not. It is known though that repeated small exposures usually produce infection and tissue invasion. These milder infections probably account for our high percentage of positive stool examinations and may be asymptomatic or mildly symptomatic as previously mentioned. It is presumed that many individuals who are constantly or repeatedly exposed to small doses of Endomaeba histolytica develop not an immunity but a more or less tolerance to amebiasis.

Infection by multiple large doses of a viable cyst to provide a large number of amebas almost invariably produces acute infection and acute severe symptoms, particularly in those not previously infected.

To return momentarily to a portion of the life cycle of the ameba, you will recall that when the viable cyst is ingested, it passes unchanged through the upper gastro-intestinal tract into the small bowel where the organism loses its cystic form and becomes a metacyst. This form shortly divides into a number of small amebas, usually from four to eight metacystic trophozoites. From the small bowel they pass into the cecum where the slowing down of fecal passage allows them to digest a small area in the mucosa. Here, by continued division, a colony is formed. Other trophozoites may pass further along into the descending and sigmoid colon and rectum. The amebic ulcer formation proceeds by further colonization and lysis of the mucosa and thus progresses into the deeper tissues. At autopsy the lesions are easily visible to the naked eye, their appearance varying, depending on the amount of tissue invasion, from small red ulcerated areas to frankly necrotic ulcers. This picture represents the typical uncomplicated lesion.

Complications of intestinal amebiasis are numerous. Included among these is appendicitis, many surgeons having smeared motile amebas from the appendix. Massive hemorrhage where deep ulceration has eroded vessel walls, an intestinal perforation where further erosion has penetrated completely through the bowel wall itself. An interesting lesion is the ameboma, which is, "a granulation tumor mass with a firm outer wall containing numerous amebic abscesses." (Faust) Further complications of intestinal amebiasis are amebic liver abscesses when the infection passes from the intestine into the lymphatics or portal blood flow and is transmitted into the liver. Involvement of the lung and pleura are usually the result of extension from an abscess in the dome of the liver by erosion and penetration through the diaphragm into the lung and pleural cavity. However, lung and pleural involvement may be present without infection in the liver.

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Faust and Spellberg make this classification of amebiasis. 1) "Intestinal amebiasis, 2) Extra-intestinal amebiasis." Symptoms and evidence of intestinal amebiasis vary from the relatively mild form manifested by alternate bouts of explosive diarrhea and more or less constipation, weakness, vertigo and malaise to the severe acute amebic dysentery form associated with passage of large amounts of mucus, blood, tissue, and with prostration of the patient.

Extra-intestinal amebiasis primarily is interpreted as referring to hepatic amebiasis, staging from amebic hepatitis to liver abscess.

The diagnosis of amebiasis depends upon the physician's awareness of the symptoms and his suspicion of amebiasis in all cases of lower bowel upsets. A competent laboratory technician is most essential to proper evaluation of the clinical findings of this condition.

Demonstration of the ameba histolytica recovered from the stool by saline purges or proctoscopic aspirations are essential for specific diagnosis of amebiasis. The method most commonly used is the saline purge, including magnesium sulfate or Fleet's phospho-soda, specimens being obtained from the first formed portion of the resulting bowel movement and specimens from subsequent two to four semi-liquid or liquid stools. It is to be expected that amebic cysts are to be found in the formed stool and motile trophozoites in the watery specimen. Another method, although more complicated, is the zinc sulfate centrifugal flotation test as developed by Faust and his associates. This has nearly doubled the efficiency of laboratory diagnosis of amebiasis by demonstration of concentration of amebic cysts from centrifuged specimens. When the previously mentioned laboratory examinations are not positive, the culture technique may then present results. This consists of culturing stool and mucus material on an amebic medium for forty-eight hours at thirty-seven degrees centigrade and then examining the cultured material for amebas.

The treatment of amebiasis continues to be somewhat controversial and the criteria for cure are difficult.

Treatment should be directed toward 1) lumen-abiding amebas or intestinal amebiasis and 2) tissue-abiding amebas or extraintestinal amebiasis.

Treatment of intestinal amebiasis may be divided further into two forms. 1) Asymptomatic and 2) dysenteric. The asymptomatic form is sometime referred to as the carrier state, but should be vigorously treated because a "pathologic process exists which may endanger life." (Faust) Oral amebacides are usually sufficient for treatment of this phase of the disease. Some of the most often prescribed include 1) carbarsone, an arsenical, which I believe is still one of the best drugs for treatment of asymptomatic or mildly symptomatic amebiasis. Carbarsone, having effects on both cysts and trophozoites, kills Endomeba histolytica in the intestinal contents, on the surface of the mucosa and within the intestinal wall. The usual dosage is one capsule after breakfast and supper for a ten-day course with rest periods of ten to fourteen days between courses. One course is often sufficient in the mild cases.

Acetarson or stovorsol was the earliest arsenical used as an amebicidal agent. Other drugs only to be mentioned include chiniofon or yatren and vioform.

Diodoquin has been extensively employed in treating amebiasis since 1936. The adult dosage consists of one 10-grain tablet three times a day between meals for twenty days. The reported cure rate is approximately 80 to 90 per cent. Milibis and milibis-aralen or milibis chloroquine has more recently received clinical approval as a valuable anti-amebic drug. The dosage recommended for milibis aralen is two tablets three times a day before meals for seven days and for milibis is one tablet three times a day for seven days. The milibis aralen having affect upon intestinal ameba and extra-intestinal ameba as well.

Certain antibiotics have definite and potent anti-amebic action. They are aureomycin, terramycin and fumagillin or fumadil. Toby and Most reported in 1951 that both aureomycin and terramycin have a 100 per cent anti-amebic efficiency on asymptomatic carriers lasting for two weeks following a tolerated course of treatment; but at two and a half months the ameba-free persons in the aureomycin series had dropped to 60 per cent, whereas terramycin retained its perfect record up to at least six months. The recommended dosage of aureomycin is two 250-milligram capsules taken four times daily for ten days while the terramycin dosage is one 250-milligram capsule four times daily for ten days. Fumagillin or fumadil, a relatively new antibiotic, has shown promise as an amebicidal agent. Its suggested dosage is three 10-milligram capsules daily for ten to fourteen days. It may be increased to forty to sixty milligrams daily if the patient's tolerance will permit. One course is usually sufficient for treatment of intestinal amebiasis.

Treatment of the symptomatic or dysenteric form of intestinal amebiasis consists of general measures, such as bed-rest, low residue diet and control of fluid balance, either orally or parenterally, as indicated. For the symptomatic treatment atropine and opium are used for the severe cramps. Specific treatment should consist of emetine hydrochloride, one grain subcutaneously or intramuscularly daily for four to six days. This drug produces rapid alleviation of diarrhea. Emetine has a low rate of killing Endomaeba histolytica in the intestinal wall and is to be employed until symptoms are relieved and should be given along with an oral amebacide. When using emetine, because of its being a "potentially dangerous myocardial toxicant," (Faust) several precautions should be observed. These include bed-rest, frequent pulse and blood pressure determinations and electrocardiograms before and every two days during treatment. Signs of toxicity include sudden onset of tachycardia or arrhythmias and electrocardiagraphic changes, pains in the extremities, muscular weakness, tremors, nausea, vomiting and bloody diarrhea. Any of which preclude further continuance of the drug.

It has been suggested by Hargreaves that sulfa drugs and penicillin, terramycin and aureomycin are valuable adjuncts in the cleaning up of secondary infection in the amebic ulcers. This is a fact that has been often overlooked in treating amebic colitis and the combined therapy of an arsenical and antibiotics is recommended.

The discussion of treatment of extra-intestinal amebiasis will be limited to hepatic involvement; amebic hepatitis and amebic abscess of the liver.

Amebic hepatitis may appear early or after a chronic or sub-clinical infection or it may follow an acute dysenteric stage. The patient complains of severe pain in the hepatic region, has fever and is usually prostrated. Upon examination, the liver is found to be enlarged and tender. The temperature is high but variable and the patient has chills and sweats. The white blood count is elevated to 25,000 to 30,000 with a high polymorphonuclear count of 70 to 90 per cent.

Amebic abscess of the liver is often confused with amebic hepatitis and is difficult to differentiate. It may follow early after amebic hepatitis but is more commonly seen as a late complication.

The drugs of choice in treating amebic hepatitis and abscess are 1) chloroquine and emetine with chloroquine diphosphate the drug of choice as it has a more specific anti-amebic action in amebic hepatitis. its administration by mouth is simple and its toxicity is low. It is supplied in 25-gram tablets and the dosage is one tablet four times a day for two days, then one tablet twice daily for two to three weeks.

Emetine is effective in hepatic amebiasis in daily one-grain dosage for ten days, but because of its toxicity it should not be used in preference to chloroquine.

The criteria for cure of amebiasis are argumentative but the patient with intestinal amebiasis should be kept under observation until at least three examinations, conducted not less than two days apart, and the first one following not less than ten days after the last course of treatment has been negative. Follow-up stool examinations should be made at thirty-day intervals for at least six months as amebiasis tends to recur despite vigorous treatment.

In conclusion amebiasis should be considered in all cases of diarrhea and in any case of a vague illness. Positive diagnosis depends upon recovery of the motile forms or cysts of Endomaeba histolytica from rectal lesions, proctoscopic aspirations or feces. Obviously the organism should be sought in any case of hepatitis.

With modern methods of diagnosis the prognosis of amebiasis with respect to recovery is good, provided the infection is recognized early and adequate therapeutic measures are carried out before there has been exetnsive tissue damage.

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DISCUSSION

Dr. A. Lewis Farr (Greenville)—My only criticisms of the paper are that I do not believe that emetine remains the drug of choice in acute amebic dysentery, and wish that Dr. Hand had gone further into the use of antibiotics in symptomatic amebiasis. The most extensive and adequately controlled comparison of antibiotics with the older methods of therapy is that of Martin, Garfinkel[1] and others, in which 538 cases were used, all of whom showed diarrhea, bloody stools, rectal ulcers, and trophozoites of E. histolytica. Best results were obtained with oxytetracycline, alone or combined with chloroquine, and with chlortetracycline, in combination with chloroquine, with cures persisting to six weeks in 94 to 100 per cent. Each of these regimens was clearly superior to emetine in their hands, and while both antibiotics have undesirable side effects, neither is nearly so dangerous as emetine. It is true that relapse rates have been relatively high in long follow-ups with chlortetracycline, and the relapse rate with oxytetracycline, though still low, is steadily mounting as a more extensive experience in its use accumulates. This, however, has been the experience with most amebicides. These workers showed that milibis and chloroquine were effective in only 50 per cent of patients with dysentery; emetine alone, in about 45 per cent; and the combination of emetine, carbarsone, and chiniofon, in 80 per cent. One interesting facet of their study was the demonstration that 11 of 66 patients obtained complete cures on rest and supportive measures alone. Fumadil was not studied by this group, but this drug seems to show at least as great promise as does oxytetracycline[2]. I heartily agree with Dr. Hand that ideal therapy is probably represented by some combination of antibiotics and the older amebicides.

The problem of what to do about the individual with cysts in his stools, but no trophozoites, ulcerations, diarrhea or evidence of hepatic involvement is far from solved in my opinion. It is imperative that one refrain from attributing such symptoms as these individuals may have to amebiasis until he has ruled out other G.I. lesions and emotional disturbances. In my own practice I have numerous persons who have been treated *ad infinitum* for E. histolytica cysts, while their ulcers or feeble and inadequate psyches were permitted to go their merry ways, with no one being benefited but the druggists. I do treat carriers, but without much enthusiasm, and wonder if they really should be given amebicides at all, unless they have had clinical amebiasis or are food handlers. It seems no more logical to me to treat them than to give courses of penicillin to every healthy individual who carries the B. hemolytic streptococcus or pneumococcus in his throat or lung. The traditionally correct answer is that they should be treated, but I have yet to see what I consider valid evidence that this is so.

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MISSISSIPPI STATE BOARD OF HEALTH

In 1877, the year the State Board of Health was created by the Legislature, the fifteen members selected to form that first Board were among the most eminent and accomplished physicians in the state. All of them had held official positions in the medical and surgical departments of the Army of the Confederate States of America. Not only were they learned in their profession, but cultivated and scholarly gentlemen as they were, they were influential in their communities—men worthy to set the standards of requirements for medical license and to establish and enforce regulations for public health in Mississippi.

Through the seventy-odd intervening years, all subsequent boards likewise have been composed of public spirited physicians who, with only a token remuneration and little public notice, have sought to meet the great responsibility of protecting the people's health. Times have changed, science has advanced, legislation has been enacted; but always the members of the Board have been dedicated to the public welfare, whatever the health challenge.

Present members of the State Board of Health, composed of eight physicians and one of Health, composed of eight physicians and one dentist, nominated to the governor by the State Medical Association and the State Dental Association, respectively, who in turn elect the executive officer of the Board. Representing every Congressional district in the state, the members are as follows: Dr. Reuben B. Caldwell, President, Baldwyn; Dr. Nathaniel C. House, Batesville; Dr. Paul G. Gamble, Greenville; Dr. James K. Avent, Grenada; Dr. William H. Banks, Philadelphia; Dr. Hugh L. McKinnon, Hattiesburg; Dr. Samuel E. Field, Centreville; Dr. Harvey F. Garrison, Jr., Jackson; Dr. Estes M. Blackburn, Jackson; and Dr. Felix J. Underwood, Executive Officer, State Board of Health.

The Early Management of the Wounded Chest

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THORACIC TRAUMA is handled much the same as trauma of any other region of the body with modifications to care for disturbed cardiorespiratory dynamics and specific anatomic features. The general principles of the control of shock and of the surgery of open wounds are as carefully invoked here as elsewhere. It is unique in that many mild traumatic injuries improperly treated may be disastrous while massive trauma properly treated early, by simple measures, may give excellent results.

Diagnosis of the injured chest can be made in most instances from the history and the physical which should include accurate localization of the external wounds. X-rays should include a PA and lateral of the chest, and also an abdominal film because of the high incidence of associated abdominal wounds and of acute gastric dilatation even in the absence of intra-abdominal injury. The course of a foreign body or projectile can usually be determined by considering the wounds of entrance and of exit, fractured ribs and present position of the fragment. These will suggest which organs may have been injured and thus aid in evaluating necessary immediate and ultimate surgery.

First aid to the thoracic injury consists of 1) transporting the patient in a sitting position because of the increased breathing reserve in this position, 2) restoring the integrity of the chest wall by closing the sucking wound and supporting the chest when it is frail because of multiple rib fractures, 3) encouraging coughing in the patient with moist rattling respiration. All of these measures can be applied without any special equipment whatsoever even by a trained layman.

The thoracic casualty is usually maintained in shock by cardiorespiratory imbalance with pain and hemorrhage as frequent secondary factors. With certain exceptions such as continued massive hemorrhage or intra-abdominal complications, there is no need for rushing these patients to the operating room as six to twelve hours may well be used in resuscitation. In extensive pulmonary or cardiac contusion, at least twenty-four to forty-eight hours should elapse before even minor surgery. In the correction of impaired cardiorespiratory physiology three factors must be considered: restoration of the chest wall integrity, maintenance of an open unobstructed airway, and complete reexpansion of the lung.

The sucking wound can be temporarily concluded with a massive grease gauze dressing. A useful procedure at this point is to evacuate the pleural cavity by having the patient cough or exhale forcefully while the wound is open and manually approximate the wound while the patient inhales. Several hundred cubic centimeters of blood and air may be removed in this fashion.

Simple rib fractures are best handled by intercostal or paravertebral blocks with novocaine. This relieves the associated pain and quiets the labored respiration that may be accentuating paradoxical motion of the chest. With multiple rib or sternal fractures and an extensive flail chest, mechanical stabilization may be necessary. This may be accomplished by firm elastic adhesive strapping or simply positioning the patient with the injured side down. If necessary a sterile towel clip or wire loop may be anchored to one of the central ribs of the flail segment and attached to five pounds traction over a simple overhead pulley. In the rare case where these measures will not suffice, the patient can be placed in an iron lung (mechanical respirator) which will achieve the desired expansion and contraction of the chest regardless of the status of the ribs or sternum.

After thoracic trauma the airway is often blocked because of increased pulmonary secretions and faulty bronchial drainage. Part of the obstructing fluid is reflex secretion secondary to the thoracic wall trauma, other may be from pulmonary bleeding, aspirated naso-pharyngeal or gastric secretions or flooding of the lung through a bronchopleural fistula. This "Traumatic Wet Lung" may be found early or as late as several days after injury. A constant hacking wet cough is the most common symptom often attended by dyspnea, and frequently giving the picture of pulmonary edema or even asthma. The attendant anoxia, the forceful respiratory excursions and the inability to cough effectively all tend to further lung moisture and lead to further anoxia. Chest pain often plays a key role by interfering with effective coughing. Treatment consists of controlling the pain by nerve blocks, the administration of oxygen and the utilization of mechanical suction if the coughing remains ineffective. Aspirations with an endotracheal catheter or with the bronchoscope should be repeated as often as may be necessary.

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A tracheotomy may often be life saving and should be utilized early rather than being reserved for the terminal patient. First of all it affords a most convenient route for tracheal aspirations. Also by removing the resistance of the larynx, which has much less than half the total cross sectional area of the trachea, inspiratory effort is markedly reduced as is parodoxical motion of the chest wall. In addition the dead air space is reduced from about 150 cc. to about 50 cc., further easing the respiratory effort required for adequate ventilatory exchange.

Reexpansion of the lung is usually prevented by a pneumothorax or hemothorax. These can usually be detected from the physical examination alone. A tension pneumothorax most often develops from a pulmonary laceration with a check valve mechanism, though it may occur from a sucking open wound. The emergency treatment consists of a thoracentesis and if necessary a large bore needle may be left in an upper anterior interspace with attachment to a water trap or a flutter valve. If air continues to bubble out, the needle should be replaced by one or more catheters attached to a water trap system. It must be remembered that if the catheter is not larger than the calibre of the bronchial opening the tension will not be relieved. Wounds of the subglottic larynx or trachea may produce mediastinal emphysema with rupture of the air into the pleural cavity. This latter type requires in addition an immediate tracheotomy as the pressure in the trachea is not sufficient to force air out into the mediastinum once the resistance of the larynx is removed.

A hemothorax is the most common complication of intrathoracic injuries and if large may dangerously reduce the vital capacity. Thoracentesis should be performed to evacuate the blood, removing as much at one time as the patient can tolerate without a feeling of tightness in the chest. By diligent repetitions of the thoracentesis over 75 per cent of all hemothoraces can be completely cleared. The blood is never replaced by air as this procedure is ineffective in controlling the bleeding and only creates a large potential empyema space. Persistent hemorrhage is usually from an intercostal vessel or the internal mammary and will necessitate early operation.

Pulmonary contusions, hematomas and blast injuries on the other hand are not operative lesions. The recuperative power of the lung is tremendous—a fact little appreciated. An entire lung may be consolidated with blood and clear shortly to an almost completely perfect functional unit. The blast injuries with their multiple small hemorrhagic areas bilaterally usually quickly resolve with little or no residuals and surgery in these cases is meddlesome and dangerous.

In the early period intravenous fluids are limited to whole blood, with plasma being used only in emergencies until blood is available. While rapid blood loss must be replaced, it also must be recognized that the injured heart or lung does not tolerate large or rapid transfusions well, and pulmonary edema may be precipitated to become a factor in a fatal outcome.

Early operation is indicated in any open wound of the chest, in any continued massive leakage of air or blood into the chest, in thoraco-abdominal wounds, in wounds of the esophagus, and in some wounds of the heart.

The early handling of a wound is concerned primarily with the prevention and control of infection as nearly all are contaminated. Debridement of the external wound is mandatory as soon as possible. Definitive closure of the wound, sucking or otherwise, should be performed at this time. Ordinarily a few sutures in the intercostal aid extra-costal muscles will suffice to achieve a pleuro-muscular closure. It is usually better to leave the skin unsutured and dress the wound with a large occlusive bandage that is not disturbed until time of secondary closure about 5 days later. At this time in the operating room under sterile technique, the wound can be inspected, closed if clean, or debrided further where necessary. This method will allow about 95 per cent of the wounds to have a successful secondary closure. Except for a few specific instances the initial wound surgery should be conservative and a formal thoracotomy for removing foreign bodies or rib fragments, suturing lacerated lung, etc., should be delayed until the golden period of 4 to 10 days post injury when the morbidity and mortality will be much reduced.

Massive leakage of air that cannot be controlled by intercostal catheters usually indicates wounds of the trachea or larger bronchi which should be explored early to correct the defects and prevent infection. There is usually an extreme pressure pneumothorax and complete collapse of the ipsilateral lung with subcutaneous and mediastinal emphysema. Closure may be accomplished by use of local mediastinal tissue, pleura or muscle flaps where direct suture is not feasible. In rare cases lobectomy or pneumonectomy may be necessary. However, to return to our original thesis that many severe injuries do well if given proper resuscitation, many of these patients even with complete traumatic rupture of one of the major bronchi will live if only the tension pneumothorax is properly handled. If left unrepaired, however, these develop bronchial stenosis with distal sepsis or atelectasis which can be prevented by early thoracotomy and bronchial repair.

Thoraco-abdominal wounds carry a high mortality of about 35 per cent and constitute one of the most urgent of all emergencies. Because of the amount of surgery it is better to avoid separate thoracotomy and laparotomy incisions whenever possible. If both are indicated, the thoracotomy is preferably done first with repair of the diaphragm from above, re-expansion of the lung and provision of intercostal drainage. It should be remembered that a laparotomy with an open diaphragm constitutes a "sucking wound" and requires endotracheal anesthesia and careful attention to pulmonary expansion. In right-sided thoraco-abdominal injuries, if more than the liver or kidney be damaged, a laparotomy will be needed for adequate exposure. On the left side a transthoracic, trans-diaphragmatic approach will allow access to the kidney, spleen, stomach, most of the small intestine, the splenic flexure and a portion of the transverse and descending colon. Any damaged colon should, of course, be exteriorized through a separate incision.

Esophageal injuries are rare and hard to diagnose. The most common symptom is continued substernal discomfort with acute substernal pain on swallowing. A thoracentesis, a lipiodol swallow or the passage of a Levine tube may aid in the diagnosis. In very small esophageal injuries where under close medical supervision no evidence of leakage of air or fluid is detectable, it is often feasible to carry the patient on massive Broad Spectrum antibiotic coverage without thoracotomy. However, any continued spillage is always followed, regardless of antibiotic therapy, by massive fulminating mediastinitis and empyema and demands an early thoracotomy. A layered closure of the esophagus is performed with drainage of the area transpleurally. Anterior and posterior intercostal water seal catheters should be used to expand the lung as rapidly as possible to localize and minimize any empyema which may develop.

Wounds of the heart are difficult to diagnose and most often fatal prior to being seen by the physician. A slow leak may cause cardiac tamponade which may be recognized by the classic symptoms of an elevated venous pressure, a low systolic arterial blood pressure with a low pulse pressure, a quiet heart on fluoroscopy and a slow pulse out of keeping with the hypotension. Many require no treatment other than the subxiphoid aspiration of the pericardial contents. However, while this is being performed, the operating room should be prepared, as any rapid recurrence demands operative intervention with closure of the myocardium. The pericardium is not closed tightly but is allowed to drain into the pleural cavity, which is likewise drained. Patients with myocardial contusion tolerate surgery extremely poorly and should be handled much as an acute cononary and any necessary operation delayed as long as possible. Foreign bodies may be better removed at a later date, meanwhile utilizing position of the patient to control embolization.

Foreign bodies in the chest are not alone an indication for immediate thoracotomy. Patients do much better in terms of morbidity and mortality if these are removed after the lung has recuperated from the initial trauma and normal cardiorespiratory dynamics are restored. It has been found that after 4-10 days, any foreign body above 1.5 cm. in size should be removed due to the late complications they cause such as bronchopleural fistula, abscess, empyema or delayed hemorrhage.

A certain percentage of hemothoraces (perhaps 15-25 per cent depending on civilian or military origin) proceed to clot and cannot be adequately evacuated by thoracentesis. If massive, the organization of this clot may lead to respiratory difficulties. The development of the enzymes such as streptokinase and trypsin have given excellent results in liquefying these clotted hemothoraces so that they can be evacuated with a needle. Should the hemothorax become infected or develop an empyema, it can likewise be liquefied by the combined action of streptokinase and streptodornase. The fibrinolytic action of the streptokinase liquefies the clot, while the streptodornase liquefies the desoxyribonucleo-protein that forms the major portion of the solid matter in a purulent exudate. Neither enzyme has any action on living tissue. The major danger appears to be the possibility of dissolving the clot from blood vessels perhaps causing further hemorrhage or by removing the fibrinous plug of an exposed bronchus, opening up a broncho-pleural fistula. However, in practice, these theoretic dangers are apparently avoided by merely waiting as short a period as 2-3 days after cessation of bleeding before starting the enzyme therapy.

It is most important to note these enzymatic agents do not work well in chronic hemothoraces or empyemas. As early as the seventh day at the periphery of a clot fibroblasts and angioblasts may be seen. By the third or fourth week mature fibrous tissue has developed and the entire circumference is encased in a peel that at this stage is only loosely connected to the visceral or parietal pleura. The peel continues to increase in firmness and thickness becoming several millimeters in size. Thus while the enzymes may liquefy the contents for evacuation, the living peel firmly resists expansion of the lung and maintains the empyema space. At this stage decortication is indicated as the peel can be removed much like peeling an orange, leaving an intact pleural surface. Usually only visceral pleural surface is decorticated including the diaphragm and interlobar tissues. The parietal layer is usually thicker and more vascular, and its removal contributes little to the functional result. At operation the lung should completely reexpand with the pleural space being drained with at least two intercostal catheters attached to water seal bottles. It should be stressed that the operative procedure is a removal of the clot and its peel and not the removal of the pleura. The pleura is left completely intact. In fact, if the pleura cannot be left so, the operative procedure should be abandoned as the number of empyemas and bronchopleural fistulae will be prohibitive.

SUMMARY

Resuscitation should consist of 1) restoring the integrity of the chest wall, 2) maintenance of a patent bronchial tree, 3) providing for reexpansion of the lung with thoracenteses or catheters attached to water seal bottles, 4) cautious transfusions and, 5) antibiotics.

Early operation is indicated for open wounds, continued massive leakage of air or blood, thoracoabdominal injuries, esophageal injuries and certain cardiac injuries. Other conditions are much better handled by delayed thoracotomy.

It should be remembered that improperly handled minor lesions such as pneumothoraces or hemothoraces may lead to tragic complications. On the other hand, due to the immense reparative power of lung tissue, excellent results may be obtained in massive traumatic injuries by the early utilization of simple physiologic measures of resuscitation.

Interpreting Medical Literature

HARVEY F. GARRISON, SR., M. D.

GASTRIC DIGESTION OF HOMOGENIZED MILK IN INFANTS. A. Adam and E. Czech. Monatsschr. Kinderh. 103:361-365 (Aug.) 1955 (In German), (Berlin, Germany).

Although it is generally accepted that homogenized milk is more easily digested than ordinary cow's milk, the value of this milk in the feeding of infants is still being disputed. The authors decided to ascertain whether the quantity of gastric juice that is produced after feeding with homog enized milk differs from that produced after feeding of ordinary cow's milk. Their investigations were made on 18 infants, ranging in age from six weeks to eight months. Comparative tests were made with homogenized and non-homogenized milk. By means of the sugar curve of the stomach, it was ascertained that in 15 of the 18 infants less gastric juices were required for the digestion of homogenized than for the digestion of non-homogenized milk. In three of the infants the gastric sugar curves were atypical due to secretory anomalies of the stomach. On the basis of their observations, the authors conclude that homogenized milk deserves wider use in the feeding of infants.

Comment:

There is no doubt about the value of homogenized milk in infant feeding. It definitely has its place, but at the same time it is our experience that it is not safe to begin feeding of homogenized milk to very young infants. We rarely ever begin feeding of homogenized milk until after three or four months.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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TOLL RISES

An overwhelming problem to the medical profession and to the citizenry is the 100,000 accidental deaths each year, the nine million injured and the nine billion dollars that these deaths and injuries cost. Accidental deaths and injuries are partial to our most valuable manpower—the average age of those taken by accident being 46 years. Our Christmas holidays claimed over 800 accidental deaths. This great loss to human society by accidents makes rehabilitation still more important. When the war ended, some thought it would not be long until rehabilitation would cease to be a problem, but in the face of what we now have, war injuries are dwarfed. In the December 17 Journal of the A.M.A. is a wonderful editorial on rehabilitation. As brought out in this editorial, the rehabilitated have a better production record, fewer accidents and less absenteeism than the person who has no handicap. It is remarkable that such a high percentage of the disabled can be returned to work of some kind, and that the investment in rehabilitation pays such fine dividends. It is hoped that our four-year medical school will give due consideration to rehabilitation with Jackson as the center, but with its work reaching to every section of the state on a classified and graduated basis. This can be done on this plan as well as the treatment of sickness of any type and as well as we manage academic education.

VICTORY NOT YET COMPLETE

The victory over polio seems to be in sight, but we fear that too many think there is nothing further to do. It is not yet time to let up on this problem. There is much to do yet and will be for a long while. Research and more complete application of what we know are more important than ever. The control of polio will be one of the greatest victories in medicine, but the real victory is not yet won. There is a great challenge to the medical profession right now for guidance, continued education and cooperative understanding from the lay public.

MID-SOUTH EXHIBITORS

You will note the list of exhibitors of the Mid-South Postgraduate Medical Assembly. Our pharmaceutical houses have done a big part in the onward march of medicine. They have vision and they strive for a better service to the people. We appreciate every exhibitor who displays at the Mid-South. We acknowledge the part the exhibitors have played in building the high standards of the Mid-South Medical Assembly.

PAST-PRESIDENTS DINNER

We are sure the past-presidents of the Mid-South will enjoy the annual banquet, to be given this year by Dr. Joe Verser. An active, big-hearted and generous host, we hope that every past-president will be present. Dr. Lawrence Long of Jackson inaugurated the organization of the past-presidents into a club.

News and Comment

INTERNATIONAL COLLEGE OF SURGEONS

The first meeting of the Mississippi Section of International College of Surgeons will be held at the Heidelberg Hotel, Jackson, Mississippi, January 24, at 2:00 P.M. There will be an afternoon and night meeting.

Dr. Ross McIntyre—Vice - Admiral Retired, Chicago, Ill.

Dr. Curtice Rosser—Colon and Rectal Surgeon, Dallas, Texas

Dr. Leo Starry—Professor of Surgery, Oklahoma School of Medicine, Oklahoma City

Dr. Gilbert Douglas—Obstetrics and Gynecology, Birmingham, Ala.

Dr. Neal Owens—Plastic Surgeon, New Orleans, La.

Panel discussion "Surgical Injuries to Ureters" by Rosser, Douglas, Starry and guest, Dr. Temple Ainsworth of Jackson.

Reception, banquet and evening meeting with same essayists.

AMERICAN COLLEGE OF PHYSICIANS

At the sectional meeting of the American College of Physicians, which convenes in Shreveport, La., January 14, 1956, Mississippi representation by members of the College includes two original papers which are to be read by a private practitioner and part-time faculty member, Dr. E. Leonard Posey, and by a preventive medicine and part-time faculty physician, Dr. Thaddeus D. Labecki; a very interesting paper will be discussed by a private practitioner and part-time faculty member, Dr. J. P. Melvin, Jr.; and two other papers will be discussed by full-time faculty members, Dr. J. R. Snavely and Dr. Fred Allison.

Eminent physicians from Louisiana who will appear on the one-day program are: Dr. Edward R. Christian, Dr. Irving L. Rose, Dr. Manuel Gardberg, Dr. Albert Segaloff, Dr. J. H. Seabury, Dr. C. Thorpe Ray, Dr. Harry Dascomb, and Dr. Gordon McHardy, all of New Orleans;

Dr. Neil Weaver, Dr. Douglas L. Gordon, from Baton Rouge; Dr. M. D. Hargrove, Dr. Owen Harwell, from Shreveport.

Dr. Walter Palmer of Chicago, Ill., will speak at 2:30 p.m. on "Psychological Problems in Peptic Ulcer.'

NORTHEAST MISSISSIPPI MEDICAL

The fourth quarterly meeting of the Northeast Mississippi Medical Society was held in Tupelo and it was unusually good and well attended. The society is grateful to Tupelo, its doctors and druggists. for this annual gesture of Yuletide hospitality.

Dr. J. T. Davis of Corinth is the incoming president and Dr. H. H. McClanahan of Columbus remains secretary. The March meeting is to be held in Booneville. We are now extending Dr. Felix J. Underwood, a member of Northeast Medical, a most cordial invitation to be with us in March.

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY—FEBRUARY 14-17, 1956

Technical Exhibits

Abbott Laboratories, North Chicago, Ill.
American Ferment Co., Inc., New York, N. Y.
Ames Company, Inc., Elkhart, Ind.
Audio-Digest Foundation, Glendale, Calif.
Ayerst Laboratories, New York, N. Y.
Baby Development Clinic, Chicago, Ill.
Bilhuber-Knoll Corporation, Orange, N. J.
Brayten Pharmaceutical Company, Chattanooga, Tenn.
Burroughs Wellcome & Co. (U.S.A.), Inc., Tuckahoe, N. Y.
Central Surgical Company, Inc., Little Rock, Ark.
Ciba Pharmaceutical Products, Inc., Summit, N. J.
Delta Surgical, Inc., Memphis, Tenn.
Desitin Chemical Company, Providence, R. I.
The Dick X-Ray Company, Memphis, Tenn.
Eaton Laboratories, Norwich, N. Y.
Ethicon, Incorporated, New Brunswick, N. J.
H. G. Fischer & Company, Franklin Park, Ill.
Flint, Eaton & Company, Decatur, Ill.
The Foregger Company, Inc., New York, N. Y.
General Electric Co., X-Ray Dept., Memphis, Tenn.
Gerber Products Company, Fremont, Mich.
H. J. Heinz Company, Pittsburgh, Pa.
Hoffmann-LaRoche, Inc., Nutley, N. J.
Kay Surgical, Inc., Memphis, Tenn.
Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.
Eli Lilly and Company, Indianapolis, Ind.
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Lloyd Brothers, Inc., Cincinnati, Ohio
M & R Laboratories, Columbus, Ohio
J. A. Majors Company, Dallas, Texas
Mead Johnson & Company, Evansville, Ind.
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Memphis Limb & Brace Company, Memphis, Tenn.
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Miller Surgical Company, Chicago, Ill.
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Parke, Davis & Company, Detroit, Mich.
Pet Milk Company, St. Louis, Mo.
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The Purdue Frederick Company, New York, N. Y.
R. J. Reynolds Tobacco Company, Winston-Salem, N. C.
A. H. Robins Company, Inc., Richmond, Va.
J. B. Roerig and Company, Chicago, Ill.
Sandoz Pharmaceuticals, Hanover, New Jersey
Schering Corporation, Bloomfield, New Jersey
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Sharp & Dohme, Division of Merck & Co., Inc., Philadelphia, Pa.
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Winthrop Laboratories, Inc., New York, N. Y.

EIGHTH ANNUAL CONVENTION—INTERNATIONAL ACADEMY OF PROCTOLOGY

Plan now to attend the eighth Annual Teaching Seminar of the International Academy of Proctology at The Drake, Chicago, Illinois, April 23 to 26, 1956. The international, national, and local program committees are planning an unusual seminar on anorectal and colon surgery. There will be special emphasis on anorectal presentations, and on panel discussions, as requested by those who attended the New York meeting in 1955.

Eminent speakers from all parts of this country and abroad will present interesting papers and motion picture demonstrations of their personal techniques. Mexico is expected to be very well represented at this meeting.

The best unpublished contribution on proctology or allied subjects will be awarded $100.00 and a certificate of merit. Certificates will be awarded also to physicians whose entries are deemed of unusual merit. This competition is open to all physicians in all countries, whether or not affiliated with the International Academy of Proctology. The winning contribution will be selected by a board of impartial judges, and all decisions are final.

The formal award of the first prize, and presentation of other certificates, will be made at the Annual Convention Dinner Dance of the International Academy of Proctology, April 26, 1956, at The Drake, Chicago, Illinois.

INSTITUTE OF PSYCHIATRY AND NEUROLOGY

Dr. Harold W. Sterling, manager, has announced that the eighth annual Institute in Psychiatry and Neurology will be held at the Veterans Administration Hospital, North Little Rock, Arkansas, on March 1 and 2, 1956.

Participants will include the following: Dr. Walter E. Barton, superintendent, Boston State Hospital, Boston, Massachusetts; Dr. J. B. Bounds, manager, Veterans Administration Hospital, Jefferson Barracks, Missouri; Dr. J. F. Casey, Director, Psychiatry and Neurology Service, Veterans Administration Central Office, Washington, D. C.; Dr. Ralph M. Chambers, formerly Chief Inspector, Central Inspection Board, American Psychiatric Association, Washington, D. C.; Dr. Henry A. Davidson, Essex County Hospital, Cedar Grove, New Jersey; Dr. R. H. Felix, Director, National Institute of Mental Health, Bethesda, Maryland; Dr. R. Finley Gayle, Jr., President, American Psychiatric Association, Richmond, Virginia; Dr. R. W. Gerard, The Neurophychiatric Institute, University Hospital, Ann Arbor, Michigan; Dr. Francis J. Gerty, Professor of Psychiatry, University of Illinois College of Medicine, Chicago, Illinois; Dr. Granville Jones, Superintendent, Eastern State Hospital, Williamsburg, Virginia; Dr. A. Lowell Kelley, Professor of Psychology, University of Michigan, Ann Arbor; Dr. Lawrence C. Kolb, Director, Psychiatric Institute, New York, New York; Dr. F. Douglas Lawrason, Provost for Medical Affairs, University of Arkansas School of Medicine, Little Rock; Dr. Theodore Lidz, Professor of Psychiatry, Yale University School of Medicine, New Haven, Connecticut; Dr. Karl A. Menninger, The Menninger Foundation, Topeka, Kansas; Miss Mary Redmond, Director, Psychiatric-Mental Health Nursing Program, Catholic University, Washington, D. C. Dr. R. Finley Gayle, Jr., will be the principal speaker at the dinner session Thursday evening, March 1. On Wednesday, February 29, preceding the institute proper, there will be seminars in clinical psychology and psychiatric nursing.

FLORIDA O AND O SEMINAR

The Tenth Annual University of Florida Midwinter Seminar in Ophthalmology and Otolaryngology will be held at the Sans Souci Hotel in Miami Beach the week of January 16, 1956. The lectures on Ophthalmology will be presented on January 16, 17, and 18, and those on Otolaryngology on January 19, 20, and 21. A midweek feature will be the Midwinter Convention of the Florida Society of Ophthalmology and Otolaryngology on Wednesday afternoon, January 18, to which all registrants are invited. The registrants and their wives may also attend the informal banquet at 8 p.m. on Wednesday. The schedule has been changed to provide a maximum time for recreation each afternoon.

The Seminar lecturers on Ophthalmology this year are: Dr. Francis H. Adler, Philadelphia; Dr. A. Gerard DeVoe, New York; Dr. Michael J.

Hogan, San Francisco; Dr. C. Wilbur Rucker, Rochester, Minnesota; and Dr. A. D. Ruedmann, Detroit, Michigan. Those lecturing on Otolaryngology are: Dr. Frederick A. Figi, Rochester, Minnesota; Dr. Lewis F. Morrison, San Francisco; Dr. Charles E. Kinney, Cleveland; Dr. John R. Lindsay, Chicago; and Dr. Bernard J. McMahon, St. Louis.

Fifty-Year Club Biographica

DR. A. M. WYNNE

The home-town celebration of Dr. A. M. Wynne's fifty years in practice was marked by a community-wide participation on November 27 in Merigold.

The following was delivered by Dr. John C. Russell, Jr., on this occasion:

Andrew Monroe Wynne, the son of A. M. Wynne and Annie T. Crenshaw, whose family homes were at Deeson and Merigold in Bolivar County, Mississippi, where his parents had extensive land holdings, was born on September 8, 1884, near Toccopola, Mississippi. The family moved to Memphis, Tennessee, in 1888.

He was educated at Christian Brothers College from which he received an A.B. degree in June, 1901. He enrolled at Memphis Hospital Medical College (which later became affiliated with the University of Tennessee) in July 1901, from which he was graduated with the degree of M.D. on April 28, 1904. At the same time he received an M.A. degree from Christian Brothers College.

He was licensed to practice medicine in the state of Tennessee on April 29, 1904. He interned part of the year 1903 at St. Joseph Hospital, Memphis, and part of 1904 at Memphis City Hospital, which later became known as the John Gaston Hospital.

He entered private practice in Memphis in June 1904, where he continued until July, 1906.

On October 2, 1904, he married Miss Olive E. O'Brien of Memphis. They have the following children: Miss Olive Stuart Wynne of Merigold, A. M. Wynne, Jr., of Houston, Texas, Miss Nell E. Wynne of Merigold and Cleveland, and Mrs. J. A. Westerfield of Merigold.

In July, 1906, Dr. and Mrs. Wynne moved to Inverness, Mississippi, where he practiced until July, 1908, at which time he moved to Merigold and is now in his forty-eighth year of practice there.

Since living in Merigold, he has served as city alderman for six years, and is city alderman at the present time.

He was the first president of the board of trustees of the Merigold Consolidated School, and was a school trustee for twenty-one years. He was also a member of the Selective Service Boards of the First and Second World Wars.

He is a member of the Methodist church, and belongs to the following medical and fraternal societies: the Delta Medical Society, Mississippi State Medical Association, Southern Medical Association, American Medical Association, Association of American Railway Surgeons, Association of American Physicians and Surgeons, the American Legion, the Shrine, Delta Council and Farm Bureau, and is a K.C.C.H. Scottish Rite Mason.

Dr. Wynne received his Golden T. from the University of Tennessee on September 27, 1954.

JAMES AYLMER SLACK

James Aylmer Slack, was born at Friars Point, August 15, 1882.

He attended school in Friars Point and at the age of fifteen entered Bethel College where he remained for two years. Following this, he went to the University of Kentucky. And, from Kentucky, he went to Tulane University. In 1905 he received his medical degree from Tulane.

Following graduation, Doctor Slack located at Sunflower, Mississippi, where he practiced for a year and one-half. After this, he returned to Friars Point where he has practiced continuously.

Doctor Slack served as a major in the medical corps in the first World War, and later as Grand Chef de Gare of Forty and Eight for Mississippi in 1930. He has served as president of the Coahoma County Medical Society and president of the Clarksdale and Six Counties Medical Society.

Doctor Slack has recently been honored with lifetime membership in the Fifty-Year Club, having served his fellowman faithfully and well for a period of more than fifty years.

(Delivered by Dr. LeRoy Wilkins on the occasion of presenting Dr. Slack's Fifty-Year certificate and pin, Legion Hut, Friar's Point, Miss., October 9, 1955.)

We are gathered here today to pay tribute to your fellow-townsman, Doctor James Aylmer Slack, who has practiced medicine for 50 years, the greater part of which time has been right here in your town. As a token of this time spent in the medical profession in this state, he is to be awarded a certificate and a pin given by the Mississippi State Medical Association.

Dr. Slack was born in Friar's Point, on August 15, 1882, the son of Dr. J. J. and Emma Suddoth Slack and has lived here all of his life with the exception of the time he was in school, one and one-half years spent at Sunflower, Mississippi, and the time he was in World War I.

His father was a practicing physician in Friar's Point from 1880 until his death in 1922. His grandfather, Dr. W. L. Slack, practiced medicine for ten years and then went into the ministry. He was a graduate of Princeton University. Later on in his life he had a school in Friar's Point. His great grandfather was also a physician. From this genealogical study, you can readily see that Aylmer Slack evidently inherited quite a bit of a tendency to become a physician.

His early education was in the public school. At the age of 15 he entered Bethel College at Russellville, Kentucky, where he spent two years, transferring the following year to Kentucky University at Lexington, Kentucky, where he remained for one year. In 1900 he entered the Medical Department of Tulane University in New Orleans, Louisiana, and was graduated from that institution on May 4, 1905, with a degree of M. D. Dr. Slack has married in the meantime—1904—Miss Aline Robinson, daughter of Mr. and Mrs. George Robinson, of Friar's Point, Mississippi, and after graduation in 1905 went to Sunflower, Mississippi, to practice medicine. He was there for one and one-half years, but the home ties were too strong for him and his wife to resist, so they returned to Friar's Point to practice medicine and have been there ever since except for the time spent in the Army Medical Corps in World War I. He and Mrs. Slack are the parents of two sons, James Junius Slack and William Aylmer Slack.

During World War I, he entered the Medical Corps in 1917 as a captain and served two and one-half years—eighteen months of which were spent in France as a commander of the 348th Ambulance Company, 87th Division. He was discharged from the service the latter part of 1919 with rank of major. He has been a member of the American Legion since 1920, and the 40 et 8 since 1927. A very active member in both organizations. In 1930 he served as Grand Chef de Gare of 40 et 8 for the state of Mississippi.

He is a member of Clarksdale and Six Counties Medical Society of the Mississippi State and American Medical Societies. He is a member of the Oakhurst Baptist Church in Clarksdale, Mississippi.

My acquaintance and friendship with Dr. Slack began in May, 1905, while we were in Jackson, Mississippi, to stand the Mississippi State Board of Health examination for license to practice our profession. There were 187 candidates for this test—75 or 40.1 per cent passed and 112 or 59.9 failed. He and I were among the fortunate ones to pass. I am not so sure that it was due to any superior knowledge on our part that got us by, but we were not quite so dumb as the 112 who failed on the examination and the examiners just could not fail the whole class.

Dr. Slack is an excellent physician, a cultured gentleman, and a lovable personality. His friends cannot be numbered for every one with whom he comes in contact becomes a friend.

Slack does not profess to know all there is about medicine and does not hesitate to put his patients in the hands of those specialists who know better how to handle them than does he. He has that peculiar ability to sense early the condition of his patients and this knowledge and manner of handling patients put him in a class by himself, for so many doctors hang on to their patients too long before they refer them to more capable hands.

Several years ago there was an article in the daily paper on the progress being made in helicopters. This article stated they would be on the market soon at a fairly reasonable price. Slack met me on the streets of Clarksdale shortly after this article appeared in the paper. He had also noticed it and told me that as soon as these helicopters were available he was considering the purchase of one. I asked him what he wanted with one and he replied that he wanted to get to his patients as rapidly as possible. My answer to this was as follows: "You don't need any helicopter, you need a yoke of oxen and an ox wagon, the slowest form of transportation so as to give your patients time to get well before you can get to them and make them sicker with your medicine." Some years later I saw him across the street from me in downtown Clarksdale and called him to come on across as I wanted to ask him a question. When he came over I said to him: "Slack, do you think you are going to live long enough to have any sense?" His reply: "You old fool, I thought you wanted to ask me a question about some medical topic or some rare case you had seen." In spite of the above, we still are friends and speak to each other when we meet.

He is always in a good humor, and ready for a joke, either on himself or on some one else. He is thoroughly human and gets quite a bit out of life.

His 40 et 8 buddies, knowing that I am going to talk about him today, have been giving me some interesting accounts relative to him and his activities while on 40 et 8 conventions, but I am not going to use them today for they just would not do—and then, "We doctors never tell on one another."

Of all the professions, medicine is the one in which the client and the doctor get closer to each other than any. A doctor not only heals his patient's ills, but he is a confidant, a conciliator, an adviser, and, if necessary, a dictator. The doctor-patient relationship is one of the outstanding traits of the medical profession and may it ever be such. State medicine, in any form, would do much to destroy this relationship and God forbid that it ever comes into being.

Slack, your people here love you, and will continue to do so; you are in the sunset period of your life and, as the sunsets are the most beautiful part of the day, may this period of your life be the most beautiful, and when you shake off this mortal coil and take on the cloak of immortality may it be said of you as was said of a noted actor:

> When summer days are long and lonely,
> When midnight hours are bleak
> And only the clouds and stars their vigil keep;
> All gentle things that live shall moan thee
> All fond regrets forever wake
> For earth is happier having known thee
> And heaven is sweeter for thy sake.

Several years ago the late Dr. W. A. Evans of Aberdeen, Miss., and for many years in Chicago, where he wrote a daily syndicated article "Today's Health"—and I believe he got his wife from this county—along with Dr. W. H. Anderson, a past president of the State Medical Association, and others, started and perfected a movement for a "Fifty Year Club" in connection with the State Medical Association and approved by the Association.

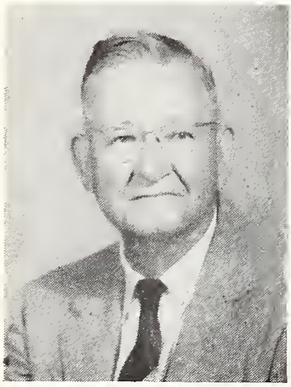
The membership of this club was to be honorary and composed of those doctors in Mississippi who had been in the practice of medicine for fifty or more years, and were at the time members of the State Association. Since that time some 130 doctors have been so honored. I think such honors and recognition of those men, who have served the sick and suffering humanity for more than half a century, is a fine gesture on the part of the Association and its younger members—to say nothing of its being richly deserved.

These half-century doctors have made history in the practice of medicine, which science, though it be an inexact science, has made more progress and has been a greater boon to the human race than any other science or development. This is attested by the marked lengthening of the span of life during the past fifty years. Not all of us have been able to discover sulfonamides or antibiotics, but we have been able to use and evaluate them and other drugs that have appeared through the years.

These older doctors have braved many hardships of wind, weather, roads, and lack of equipment and electricity, which latter is now available for light, and electric instruments, and equipment, in many of the smaller homes and so-called cabins. These men have devised many ways and means of overcoming these handicaps and lacks which have led to the more perfect and very useful instruments and needs of today. They had, in so many ways, better training than the doctors of today (without their special equipment). Their eyes, ears, noses—yes, at times their sense of taste—as well as their sense of touch, had to be educated to do so much for them then that is now easily done in the lab, x-ray room, and by the pharmaceutical houses of today. I shall only mention the modes of transportation of fifty years ago, and the roads—or rather, the lack thereof.

It is to one of those doctors who began practicing fifty years ago, who, like myself, was the son of a doctor (also grandfather and great-grandfather) and had been dedicated in early life and through these "pre-med" years been imbued with and given some training, that only a doctor could give to his son, in those precepts and examples and ethics, with love and tenderness that seemed so much the part of the country doctor, the family doctor—yes, it is to one of these that we come to do honor today. It is my privilege and pleasure to come in the name of the Mississippi State Medical Association and the sponsor of the Fifty Year Club, Dr. W. H. Anderson, and deliver to my personal friend of many years, Dr. James Aylmer Slack, this certificate of membership and to place on a worthy breast this pin also signifying membership, and to wish for you, Doctor Slack, more years of service to your fellow man, and increasingly frequent memories and reveries of the pleasant parts of the past fifty years.

WILLIAM HENDERSON BANKS



William Henderson Banks, son of William W. Uriah and Telitha Phillips Banks, was born in Neshoba County, Mississippi, June 2, 1878.

In 1909, he was graduated from the Memphis Hospital Medical College (now the University of Tennessee). Before obtaining his medical education, Doctor Banks taught school for five years and served as superintendent of several schools in Leake and Neshoba counties.

In World War I, Doctor Banks served as medical adviser for the county. He is charter member, and has served as President and Vice-President, of the East Mississippi Medical Society. For almost fifty years he has served as a steward in the Methodist Church. Doctor Banks served as Director for the Neshoba County Fair for sixteen years and for the same length of time as trustee of the local school board.

In 1934, Doctor Banks became a member of the State Board of Health and has served continuously since that time.

On September 18, 1955, the Fifty Year Club of the State Medical Association honored Doctor Banks with lifetime membership in the Association at a special service held in the First Methodist Church, Philadelphia.

Doctor Banks has served his fellowman faithfully and well and continues the practice of medicine at Philadelphia, where he located in December of 1917.

Deaths

RESOLUTIONS
DR. SAMUEL KIRKHAM GORE

Whereas, Our Infinite Father closed the book of the earthly sojourn of our friend and fellow member, Dr. Samuel Kirkham Gore, on June 12, 1955, who awaits us in that world from whence no one returns; and

Whereas, Dr. Gore was an outstanding citizen, keenly interested and active in the affairs of community, state, and nation; was a member of the Houston Baptist Church and exhibited the Biblical teachings that we love and serve our fellowman; was a dutiful husband and father, ever interested in his home and family; and

Whereas, He dedicated his life to his chosen profession of medicine, continuing his missions of mercy and healing to the detriment of his own physical condition, and was beloved and appreciated by his patients;

Therefore, Be It Resolved, That the Thirteen County Medical Association of Mississippi of which he was an active member does hereby express its sorrow because of the loss of this worthy physician and will ever keep before us "That if our earthly house of this tabernacle were dissolved, we have a building of God, a house not made with hands, eternal in the Heavens"; and

Be It Further Resolved, That these Resolutions be recorded in our minutes, published in the *Mississippi Doctor*, released to the press, and a copy sent to Dr. Gore's bereaved wife.

J. M. Hood, M.D., John D. Dyer, M.D., E. K. Guinn, M.D., L. D. Webb, M.D., Committee.

DR. B. C. CANTRELL

Services for Dr. B. C. Cantrell, veteran Tupelo physician who died at his home in the Plantersville community, were held November 23 from the Plantersville Methodist Church.

Dr. Cantrell, who was 70, practiced at Tupelo Hospital until he retired a year ago. He was a graduate of the University of Tennessee and did post-graduate work at Harvard.

He was a steward of the Plantersville Methodist Church for several years, was a Shriner and a member of the American Medical Association.

Surviving are his wife; a son, Cecil Cantrell of Plantersville; a sister, Miss Minnie Cantrell of Fulton; a half-sister, Miss Lilly Whitehead of Fulton; and two half-brothers, J. C. Whitehead Sr., of Fulton and C. B. Whitehead of Decatur.

DR. LEE LIPSCOMB

Dr. Lee M. Lipscomb, 46, prominent Jackson surgeon, died November 22 at his home, 1315 Olive. Death was attributed to a heart attack.

A native of Columbus, Miss., Dr. Lipscomb attended the University of Mississippi at Oxford and received his medical degree from Northwestern University at Evanston, Ill., in 1934.

He served an internship of a year and a half at Los Angeles General Hospital in Los Angeles. He was licensed in Mississippi in 1935 and was associated with the Diagnostic Clinic in the Lamar Building for many years.

During World War II, Dr. Lipscomb served as a lieutenant commander in the Navy with duty in the Pacific. He was associated with the Veterans Administration Hospital, Baptist Hospital, and St. Dominics Hospital.

Dr. Lipscomb was found dead in his bed by his family when they attempted to awaken him for breakfast.

Dr. Lipscomb was a member of the Central Medical Society, Mississippi State Medical Society and the Jackson Lions Club.

Survivors include his wife, the former Mamie Rush Floyd; five children, Nancy, Earl, Lee, Jr., Marilyn, and Diane; one sister, Mrs. E. P. Tomlinson, Clarksdale; and four brothers, Julian, Joe D., Reid B., and Hubert, all of Jackson.

DR. EMMETT RAY

Dr. Emmett Ray, 46, well known and universally loved Attala physician, lost his life December 4 from injuries received when his '55 Ford passenger car collided with the two and one-half-ton Kosciusko fire truck, driven by Acting Fire Chief Ernest Chunn. The accident occurred in the residential section of Kosciusko about 10 a.m. as the fire department was answering a call to extinguish a blaze in the Blaine home on Wren Street.

Dr. Ray, proceeding in his car west on South Street, was thrown about 40 feet by the impact into the front yard of Dr. Nell Cochran's home. He suffered fractured ribs, a crushed chest, internal injuries. He was rushed to the Montfort Jones Memorial hospital where he died about noon.

His car was completely demolished. Also an occupant of the car with Dr. Ray was his pet collie, "Tad," who was also thrown from the car. After treatment at the Kuykendall Animal Clinic he is recovering.

Dr. Ray was a graduate of Tulane University, New Orleans, class of 1935. He had practiced in Natchez before locating in Kosciusko.

DR. C. Z. BALLARD

Services for Dr. C. Z. Ballard, Sr., who had practiced medicine for a half century in Monticello and Dublin, were conducted November 26 at the family residence in Dublin with burial in the cemetery at Silver Creek, Miss.

Dr. Ballard, a resident of Dublin since 1917, was the father of Mrs. Katherine Dollarhite of Jackson, who formerly taught at Lester Elementary School there. He was born Oct. 24, 1881. He died at his home in Dublin after an illness of six months.

He was a graduate of Sewanee College in Memphis, a forerunner of of the University of Tennessee Medical School there. He had been a steward in the Dublin Methodist Church for 40 years.

He leaves his wife; two sons, William Ballard of Dublin and C. Z. Ballard, Jr., of Ruth, Miss.; his daughter in Jackson; a brother, Paris Ballard of Leland; a sister, Mrs. Mary Harris of Houston, Texas, and two grandchildren.

DR. LEO H. MARTIN

Services were held November 19 at Hulett funeral home chapel for Dr. Leo H. Martin, 77-year-old retired physician.

Dr. Martin died at Veterans Hospital, Biloxi, after a lengthy illness.

He had lived in Hattiesburg since graduating from the Tulane University School of Medicine in 1906. He came here as house surgeon for the G and S I Railroad Hospital. He was in general practice until ill health forced his retirement in 1948.

During World War I, Dr. Martin served on the surgical staff of a base hospital at San Antonio with the rank of captain. He was a Mason, former member of the Kiwanis Club, former president of the Forrest County Medical Society, and a member of Central Christian Church.

He leaves his wife and one daughter, Miss Mary Alice Martin of Long Beach.

DR. JACK SPICELAND

Dr. Jack Logan Spiceland, 69, pioneer physician of George County, died in the county hospital in Lucedale December 11 after an illness of several months.

A native of Lyndon, Ky., Dr. Spiceland came to Lucedale 32 years ago. He practiced medicine here until a short time before his death. He was a member of the Lucedale Methodist Church, where he served on the board of trustees. He was a member of the George County Medical Society and served as the former mayor of Lucedale for two terms.

Funeral services were held from Lucedale Methodist Church, with Rev. C. S. Schutes in charge.

He is survived by his wife, Mrs. Katherine Evans Spiceland, Lucedale; two sons, Jack L. Spiceland, Decatur, Ga., and Evans C. Spiceland, Mobile; one brother, Harland Spiceland of Golden Pond, Ky.; two sisters, Mrs. R. L. Munn of Cadiz, Ky., and Mrs. Owen McNichols, of Riverside, Ky.; and five grandchildren.

HOSPITAL FOR CRIPPLED ADULTS

The Hospital for Crippled Adults in Memphis is a unique institution. It is owned and operated by the Rotary clubs of three states. It seems that Dr. Willis Campbell, a native Mississippian, gave birth to the idea. Its service in the field of medicine and surgery is incalculable. Its doors are open to the adult who has no funds at all and Memphis' orthopedists give their services.

Woman's Auxiliary

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COMMITTEE ON CAREERS FOR NURSING *OFFERS PROGRAM SUGGESTIONS*

To establish a Nurse Appreciation Week.

A week devoted to a state-wide salute to all those who are engaged in nursing service in Mississippi . . . selection of Mississippi's outstanding nurse for the previous year—such person to be feted at a Nurses Tribute Dinner which will climax "Nurse Appreciation Week." This period will be used as a "softening up" period prior to the actual solicitation of nursing school applicants.

High School and College Solicitation Program

All those whose names have gone to Nurse Box and who are discovered in the high schools and colleges will be systematically contacted and offered guidance.

Improved Nursing Counselor Service

Provide high school and college guidance counselors up-to-date information on nursing in Mississippi. Hold periodic workshops whereby the Committee could stimulate these counselors into more active participation.

Localized Literature

Pinpoint through appropriate material the opportunities, advantages, etc., of *learning* and *serving* in Mississippi.

Questions and Answers About Mississippi Nursing:

1. Why is it so important that this program be begun this fall?

It takes from three to four years to educate a professional nurse, a minimum of one year for a practical nurse. Increased recruiting must begin this year to produce a satisfactory number of nurses in the few years ahead.

2. What part of the state will this program benefit most?

The program as outlined is designed to help all areas of Mississippi. It is not necessarily a Coast program, a Delta program or a Northeastern program. Rather, through the adoption of this plan, all citizens within the state are certain to benefit.

3. Is this program limited to any one particular type of nurse?

No—it is designed so that all nurses—graduate nurses, practical nurses, public health nurses, industrial nurses, and all others will be directly benefited.

4. Does this plan overlap or duplicate any existing operation or agency?

No.

Surgical Management of Arteriosclerotic Obstruction of the Aorta and Peripheral Vessels*

CHARLES B. OLIM, M.D.
Memphis, Tenn.

INTRODUCTION

In recent years arteriosclerotic occlusive disease of the lower extremities has received increasingly greater attention from the surgeon. The more widespread use of arteriography has revealed that many arteriosclerotic vascular lesions, contrary to earlier beliefs, are more or less confined to short segments of arteries[1],[5]. That there are favored sites of such segmental occlusions has been repeatedly shown by arteriography, and demonstrated at surgery. The aortic bifurcation, the iliac arteries, and the femoral artery in Hunters' Canal, are the chief sites of occlusion[6],[7].

Advancing knowledge of the degenerative process involved in arteriosclerosis has not yet enabled us to reverse or stop the course of the disease, so that therapy, of necessity, has been aimed at improving the circulation with drugs or by surgical means. Ganglionic blocking agents have been of only temporary benefits, and sympathectomy was, for many years, the most reliable procedure used to increase collateral blood flow to the lower extremities. Admittedly, sympathectomy leaves much to be desired, since its action involves the collateral vessels rather than the obstructed main channels. Leriche[8], many years ago, recognized the need for direct surgical attack for chronic arterial insufficiency. Dos Santos[9] developed the technique of thromboendarterectomy in one of the first efforts to restore continuity of the occluded channels. The recent use of blood vessel grafts to bridge such defects has proved successful more consistently than endarterectomy[10].

Obstruction due to arteriosclerosis is considerably more common in the femoral arteries than in the iliac arteries and lower aorta[4],[7]. This report is concerned chiefly with the surgical treatment of arteriosclerotic obstruction of the femoral artery with blood vessel grafts. Arterial homografts were used exclusively.

PATHOLOGY

There has been much discussion of the differences between "pure" segmental arterial occlusion and diffuse arteriosclerosis[5]. The exact nature of segmental arterial occlusive disease is ill-defined, and the gross and microscopic pathological picture reveals non-specific degenerative changes which do not distinguish it from ordinary arteriosclerosis. It is possible that the segmental form is purely a variation and differs from diffuse atherosclerosis only in degree. The series reported here is relatively small, but in this group there is only one case which could, in my opinion, be designated "pure" segmental occlusion, in spite of the fact that it was possible to resect and graft successfully six other cases. The one exception was a very short, (1 cm.) stenosis in the right common iliac artery of a 39-year-old man, the vessel above and below being relatively normal. In the remaining cases it was possible to obtain artery satisfactory for anastomosis at some distance from the occluded segment, but those vessels could hardly be considered "normal" since they showed intimal thickening of varying degrees. In several instances extreme care had to be exerted during suturing because of a tendency of the intima to separate.

SELECTION OF CASES

The condition of the arterial tree distal to the obstructed segment is the most important consideration. Frequently, long segments of proximal vessel can be removed until relatively healthy artery is found. The upper resectable limit is the origin of the renal arteries in the aorta, while the lower resectable limit is the popliteal bifurcation, the tibial arteries being too small for anastomotic purposes. It is possible to replace, by grafting, the aortic bifurcation and both femoral arteries down to the popliteal bifurcation provided that the tibial arteries are patent.

There are certain clinical features which suggest that a case may be operable, and that further study is warranted. The outstanding clinical symptom is claudication, or anoxic muscle pain brought about by exercise, and relieved by rest. There is an absence of rest pain in the extremity, and ischemic changes in the foot are minimal. Soft tissue atrophy and gangrene, when present, suggest that the obstruction is diffuse and that surgery is not indicated. The absence of rest pains indicates that there is adequate collateral circulation to nourish the part during minimal demands

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for oxygen. This absence of pain at rest, or during moderate exercise, is good evidence that the obstruction is segmental, and the main channel distal to the obstruction is patent and receiving blood from collateral vessels. The absence of marked skin changes in the foot and lower leg can be explained also by an open channel distal to the occlusion. The location of the occlusion can be surmised by a study of the pulses. An absent or diminished femoral pulse points to an occlusion in the iliac vessels or aorta, while a strong aortic bifurcation pulsation would localize the obstruction in the iliac artery. Frequently a soft systolic murmur is audible over the femoral artery under these circumstances. A strong femoral pulse, and absent or weak popliteal pulse, would suggest the likelihood of adductor canal occlusion. An adequate popliteal pulse, with absent pedal pulses, would indicate that the smaller vessels of the leg were involved, and that direct surgery would be impossible. The oscillometer is useful in substantiating the physical findings, and in providing an accurate record for later studies of the progress of the patient. The type and degree of claudication will, of course, depend upon the level and extent of obstruction. In occlusion of the aorta and iliac vessels the pain will be in the hip, thigh, or both; in occlusion of the femoral artery the pain will be in the calf or thigh.

The final selection of cases for surgery depends upon the results of arteriography. Only by visualization of the arterial tree is it possible to diagnose accurately the location and degree of occlusion, and intelligently plan the type of treatment. These studies have been done by the translumbar injection of 70 per cent diodrast, and percutaneous femoral arteriography with 35 per cent diodrast. In aorta-iliac occlusion with an absence of femoral pulsations it is of the utmost importance to demonstrate a patent femoral artery by translumbar injection if one is to consider surgery. (Fig. 1) In questionable cases where femoral visualization did not occur, the femoral artery can be explored under local anesthesia for direct angiographic study. In femoro-popliteal occlusion when the popliteal bifurcation and branches have not been clearly

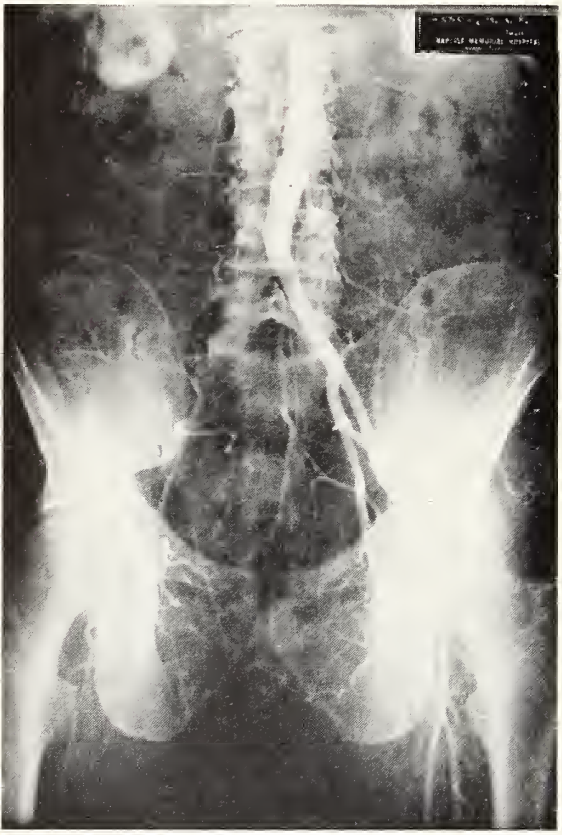

Fig. 1. Lumbar aortogram shows complete occlusion of right iliac artery with questionable patency of right superficial femoral artery. Direct arteriogram on femoral artery advised before case considered hopeless for grafting.

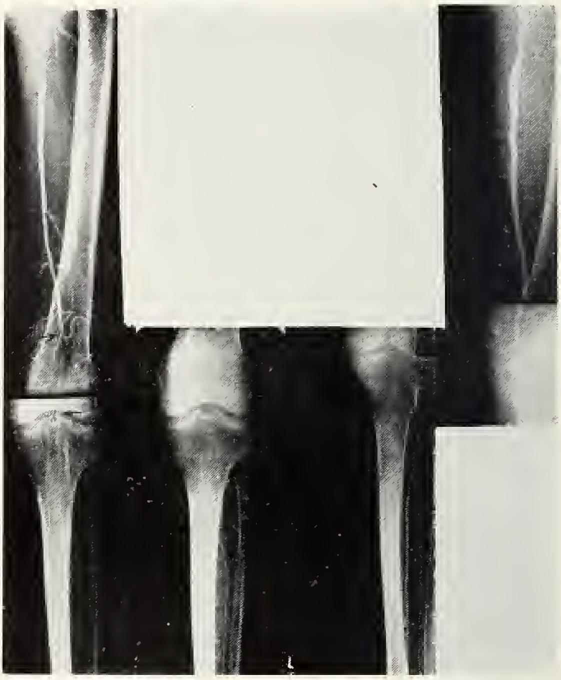

Fig. 2. (Case report)
- A. Left femoral arteriogram showing segmental occlusion, tibial arteries in leg not visualized.
- B. Second injection of diodrast reveals patent tibial arteries but popliteal not seen.
- C. Direct arteriogram of popliteal artery at surgery shows popliteal and tibial arteries patent, case amenable to grafting.
- D. Postoperative arteriogram, three weeks later, shows functioning femoro-popliteal artery graft.

visualized on the arteriograms, and the findings suggest patent vessels in the leg, the popliteal artery can be explored and a direct arteriogram made at surgery to determine the possibility of grafting[11].

An advanced case of femoral occlusion was found to be amendable to surgery by a distal operative angiogram of the popliteal artery. This case is reported here: (Fig. 2)

CASE REPORT

A 64-year-old man was first seen September 11, 1955, complaining of severe claudication in his left leg for two years. Eleven months previously a left lumbar sympathectomy had been performed without any appreciable benefit, and shortly after the operation he began to develop gangrene in the skin over the dorsum of his foot. He had been unable to walk for six weeks, and had been confined to his bed for one week prior to admission because of constant severe pain in the foot. It became necessary for him to hang his left leg over the side of the bed in order to sleep. He was taking large quantities of narcotics for relief of pain.

Examination revealed an emaciated male patient with a cold, atrophic left foot, and a large gangrenous eschar involving a major portion of the skin on the dorsum of his foot. The aortic and upper femoral pulse were normal. Due to the extreme emaciation it was possible to accurately palpate the left femoral artery throughout its entirety as it coursed down the thigh. The superficial femoral pulse was found to diminish at mid-thigh and disappear in the adductor canal where a firm thrombotic vessel was present. The popliteal and pedal pulses were absent. The right lower extremity had normal pulses throughout.

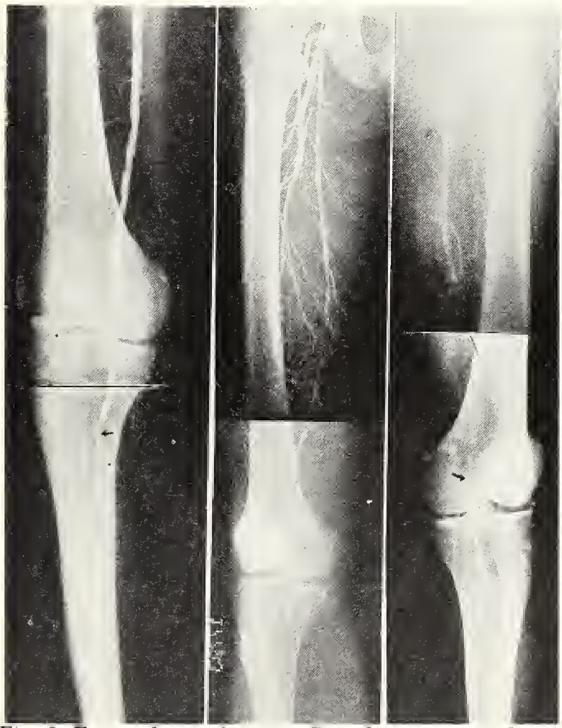

Fig. 3. Femoral arteriogram. Complete segmental occlusion of femoral artery with patent arterial tree in leg. Successfully granted.

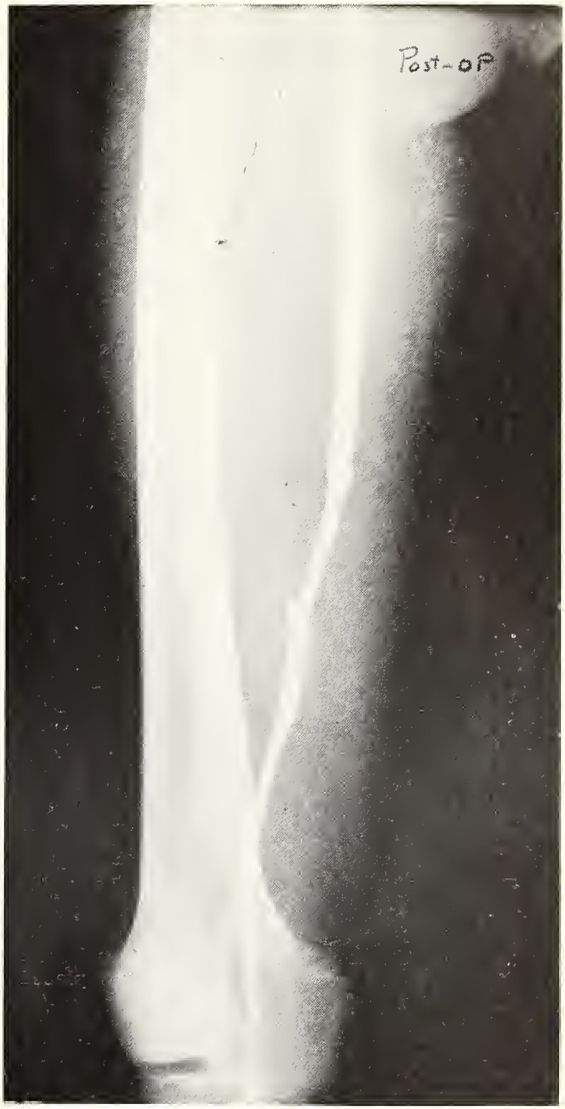

Fig. 4. Postoperative arteriogram shows functioning triple homologous artery graft.

A left percutaneous femoral arteriogram performed on September 12, 1955, showed a ragged femoral artery in the mid-thigh with complete occlusion of the artery in Hunters' Canal. The second film, made four seconds later, showed some filling of the popliteal artery below with questionable patent connections with the tibial vessels. The tibial vessels themselves appeared smooth.

The patient preferred amputation because of severe pain and discouragement over the failure of sympathectomy. He agreed to an exploration of his popliteal artery with the understanding that amputation would be performed at the time if a grafting procedure was not feasible.

The left popliteal artery was explored on September 14, 1955, through a transverse incision in the popliteal space. The proximal popliteal artery was found to be completely occluded, but the lower vessel appeared patent, with an adequate stoma, at the point where a fair-size bridging artery entered the vessel. A direct angiogram made at the operating

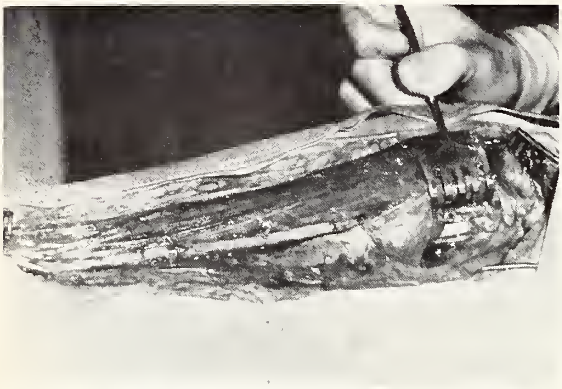

Fig. 5. Photograph of triple femoral artery graft.

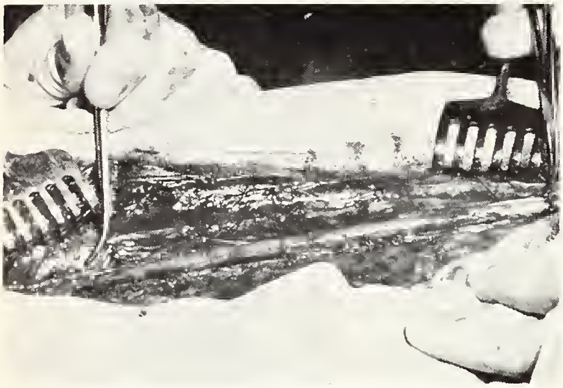

Fig. 6. Photograph of femoral artery graft placed as a bypass on top of occluded femoral segment.

table revealed a patent lower popliteal artery with normal appearing anterior and posterior vessels. In view of the finding of a patent arterial tree in the leg, a 25 cm. homologous artery graft was placed between the popliteal artery and femoral artery in the upper thigh. The occluded segment of femoral and popliteal artery was ligated at either end and left in situ. The graft was placed in position by making two short incisions in the medial thigh and tunnelling through to reach the patent femoral artery above and popliteal artery below. This bypass[4] avoided the more extensive incision which would have been necessary to remove the long occluded segment.

A good dorsal pedis pulse was present in the left foot immediately postoperatively, and the foot was warm. The eschar separated a few days later and healthy granulations appeared. The pain disappeared, and the patient was no longer taking narcotics when he was discharged from the hospital on September 28, 1955. Five weeks after surgery the dorsum of the foot was completely epithelialized, and the patient was able to return to work.

TREATMENT

The direct surgical approach to localized occlusions of the lower limbs has received increasing attention in recent years. It is fairly well established now that satisfactory results can be obtained with thromboendarterectomy, or resection and replacement in properly selected cases. Such operative procedures may be carried out at any point from the renal level of the aorta to the popliteal bifurcation, if the patient's general condition warrants such a procedure, and if it can be established, by arteriography, that the tibial arteries in the leg are patent.

Thromboendarterectomy has been performed in only two of our cases, both being aortic-iliac in origin, both were earlier cases, and the arteriosclerotic process was diffuse with segmental occlusion in each instance. We have had no experience with resection and vein graft replacement in atherosclerosis, although autogenous vein grafts have been used several times for replacement in traumatic cases.

It would appear that the more desirable form of therapy for segmental arteriosclerotic occlusion would be resection and replacement with a homologous arterial graft[5]. This form of treatment has been carried out in the last seven surgically treated cases. The grafts were all freeze-dried homografts.

SURGICAL TECHNIQUE

The operative technique has been modified several times and could not be considered standardized, but there are several principles that might be pointed out in regard to femoral artery resection and replacement. The procedures of aorta-iliac thromboendarterectomy and resection with graft replacement have been described previously[9],[12], and we have made no departures from those techniques.

Positioning the patient on the operating table can greatly simplify the placing of grafts in the femoral artery. When the arteriogram has shown occlusion in Hunters' Canal or above, the supine position is entirely satisfactory. When the popliteal artery must be exposed to its bifurcation, and the femoral artery is narrowed above, the position of choice would be mid-way between the prone and antero-lateral, with the affected extremity down. The opposite extremity is flexed at the knee and thigh and placed anterior to the surgical field. The involved extremity is draped for mobility, although, with the position described, it is frequently possible to place a graft from the popliteal artery to the mid-femoral artery without moving the patient. In the beginning, it was customary to excise the entire occluded arterial segment in preparation for the graft. The occluded artery is usually intimately adherent to the vein, due to previous inflammatory reaction, and dissection is a tedious and delicate process. In instances where it is necessary to replace the entire superficial femoral artery, from the common femoral to the popliteal bifurcation, a considerable amount of time can be expended, and considerable trauma effected in the thigh, by the dissection alone. Such extensive dissection also increases the likelihood of injury to the saphenous nerve. Short segments of artery may be removed with minimal trauma, but we have recently avoided resection of long segments of artery by the use of a by-pass. The occluded artery with any area of narrowing, is ligated and divided at either end, and left in situ. The draft is sutured to the patent divided ends of the vessel above and below and permitted to lie on the occluded segment. The ligated atherosclerotic segment offers adventitial blood supply to the graft and eventually atrophies to become a cord structure. Even more recently, we have found it unnecessary to completely expose the femoral bed for long grafts, and have made two or three short incisions, pulling the graft through tunnels connecting the incisions. This modification has appeared to be entirely satisfactory.

Craaford clamps, with soft blade covers, have been used to occlude the vessels during the anastomosis. These are preferred to bull-dog clamps because the graft can be stretched into place for suturing without tension on the suture line. The use of a graft that is too long invites kinking and possible thrombosis. Two stay sutures are placed at the angles of the vessels and continuous over and over sutures of 00000 Deknatel are employed for the anastomosis. It is well to begin the suturing on the graft side so that the needle will pass through the host vessel from within out. This tends to impinge the fragile intima of the host vessel against the outer layers of the artery, instead of separating the intima by needle inserted from without the vessel. Since no growth factor is involved there is no need for interrupted sutures, and an inverted suture decreases somewhat the lumen of the vessel. Dilute solutions of heparin are injected into the host vessel below the distal clamp in order to prevent thrombosis in the arrested column of blood. For a similar reason, the distal clamp is released momentarily to flush out the vessel, and heparin again injected, before beginning the distal suture line. Also, for the same reason, the reapplication of clamps is avoided, if possible, after they are released, hemostasis at the anastomosis being secured by pressure, or a few interrupted sutures if necessary. Systemic heparinization was not done in these cases.

RESULTS

The series reported is relatively small, comprising 10 operations on eight patients. Two patients were treated by endarterectomy, and six by resection and replacement with homologous arterial grafts. Three grafts were placed in one case. The two endarterectomies are considered failures, while the six patients in whom grafting procedures were done have successful results, with no late thrombosis of grafts to the present time. The oldest graft is nine months.

The experience with endarterectomy is limited to two cases of aortoiliac occlusion with diffuse arteriosclerosis and impending gangrene. Both were earlier cases, and in the light of present knowledge, would be considered inoperable, since there was no femoral artery visualized distal to the occlusion. Aortic intimectomy was performed satisfactorily in each case, but diffuse atherosclerosis, extending well down into a unilateral femoral artery, prevented the establishment of an adequate blood flow to the extremity. In one instance, thromboendarterectomy was carried out from the aortic bifurcation to the superficial femoral artery in mid-thigh without producing a lumen in the femoral artery.

There was one aortic bifurcation graft, and the remainder were placed in the femoral and iliac arteries. In one case the entire superficial femoral artery was replaced, and it was necessary to suture three grafts together in order to obtain adequate length, and to circumvent a discrepancy in lumen size between a proximal large and relatively small distal host vessel. This triple graft was comprised of an abdominal aorta from a six-month-old infant, and two femoral arterial segments from adults. This graft is functioning well seven months later. Two grafts sutured together have been used successfully in two additional cases for similar reasons. One graft failure occurred in a 57-year-old man with bilateral, segmental, femoral artery occlusion. There was no popliteal pulse in the immediate post-operative period in his first leg operated upon, and it was recognized that the graft was thrombosed. Two months later the femoral artery was re-explored and the graft was found to be thrombosed, with patency of the politeal artery remaining. It was discovered, at this time, that 1 cm. above the proximal anastomotic line, in the host level, was an atherosclerotic plaque which had been overlooked at the original operation. This plaque produced a bifid stream of blood, when the occluding clamp was released, and decreased considerably the blood flow at this point. Resection of this short segment of host vessel produced a forceful stream of blood, and a second graft was placed on top of the original one. This graft is now functioning well, and the patient has bilateral, strong, pedal pulses with relief of symptoms. This case should not be considered a graft failure, but rather a surgical failure to properly prepare the host vessel for anastomosis. It also emphasizes the necessity for the presence of adequate blood flow in the proximal host vessel if a patent graft is to be maintained. It suggests also that re-exploration should be considered when there is an immediate graft failure. The final result in these cases is determined by objective findings rather than subjective. In each of the successful cases there has been a palpable pulse in the foot within two hours following surgery, and in most instances, immediately following surgery, with a warm foot and distended leg veins. Pedal pulsations have remained in all cases where grafting procedures were performed, and claudication has disappeared in each instance. Follow-up arteriograms have been carried out in several, but not all cases. There have been no late thromboses of grafts.

One can only speculate at this time on the ultimate fate of these grafts. It is known that the grafts are replaced, in time, by tissues of the host. Short aortic grafts have been followed for seven years and have served their purpose well. Grafts in smaller peripheral arteries, such as the femoral, have not been observed for as long periods. Whether or not degenerative changes in the host's femoral and popliteal vessels will produce occlusive changes above or below the grafts, or whether the grafts themselves will become involved by calcification or aneurysmal formation, remains to be seen. Further observation will furnish the answers to these problems. In the meantime, the short follow-up results have been gratifying. If it is possible to save a limb from impending ischemic gangrene, and restore others to full working capacity by grafting procedures, then it would appear that such operations are justified until the time that a better procedure is forthcoming.

SUMMARY

During the past year 14 cases of insidious arteriosclerotic aorto-iliac and femoral occlusion were studied by angiographic means. Eleven operative procedures were carried out in this group. Two thromboendarterectomies were performed for aorto-iliac occlusions, and one aortic bifurcation graft was inserted. Both thromboendarterectomies were failures because of the diffuse nature of the arteriosclerotic process involving the superficial femoral arteries. One popliteal artery was explored and found to be inoperable by direct angiography at the time of surgery. Seven femoral artery homografts were done with immediate thrombosis in one, due to an overlooked plaque in the host vessel. This artery has since been regrafted with a successful outcome. There has been no late thrombosis of grafts, and pedal pulses have remained in all cases where successful grafting procedures were performed. The period of observation extends back nine months.

Several patients were in the older age group with long occluded segments, and additional segments of narrowed, but patent, vessels above and below. In addition, frank gangrene was present in one case, and marked trophic changes in two others. Each of these cases was successfully grafted. It would appear that if arteriographic studies were applied to the more advanced cases with segmental occlusion and diffuse arteriosclerosis, a fair percentage of these might be salvaged by surgery.

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The Treatment of Benign and Malignant "Moles"

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Among the medical profession the term "mole" implies a benign pigmented tumor. It is unfortunate that the attitude of benignity is associated with "moles" because melanoma, one of the most lethal tumors known to man, takes its origin from a specific type of "mole." Many physicians have undesirably extended the usage of the term "mole" to include any skin blemish. A totally unrelated tumor, the hemangioma, has been referred to as a vascular "mole." Indeed, hemangiomata have not infrequently been called vascular nevi. Further complicating the terminology of this subject are such terms as benign melanoma and neuronevus. These terms are highly inaccurate in description and since they tend only to confuse both the clinician and pathologist they should be discarded. In order to understand the problem of "moles" completely it would seem desirable that a standard nomenclature be adopted.

The term NEVUS signifies a pigmented or non-pigmented tumor composed of melanoblasts. Nevi may be either of the INTRADERMAL or JUNCTIONAL variety. A COMPOUND nevus contains both intradermal and junctional components, therefore, from a practical clinical point of view, this type nevus is of the junctional variety. All melanomata take origin in pre-existing junctional nevi. On the other hand, an intradermal nevus never gives rise to melanoma. Among surgeons the term MELANOMA indicates a malignant pigmented tumor originating from a junctional nevus. The non-pigmented variant of melanoma is known as AMELANOTIC MELANOMA. It is both unnecessary and confusing to use the terms benign and malignant melanoma inasmuch as there is no such tumor which can be properly referred to as benign melanoma. It is apparent from a review of the literatur ethat the terms benign melanoma and neuronevus are employed to indicate an intradermal nevus. From a cancer point of view we are concerned principally with the following terms:

1. Intradermal nevus
2. Junctional nevus
3. Juvenile melanoma
4. Blue nevus
5. Melanocarcinoma
6. Melanosarcoma

EVOLUTION OF NEVI

As referred to previously, a nevus is a tumor composed of melanoblasts, a cell which possesses the unusual power of converting circulating melanogens (probably the amino acid tryosine) to melanin. The amount of pigmentation of any given nevus is therefore directly related to its melanin content. Originally it was felt (Foote and Masson)[1],[2],[3] that nevi were derived from two sources, the intraepidermal melanoblasts and the cells of the sheath of Schwann. According to this theory, malignant transformation of a nevus can result either in a melanocarcinoma or melanosarcoma, since both epidermal and connective tissue cells are present within the nevus tissue. More recently, the epidermal theory has gained great popularity and is now more generally accepted[4],[5],[6]. Allen feels that all pigmented nevi originate from epidermis. Therefore, according to this theory all melanomata are melanocarcinomas. The only melanosarcoma which we recognize is that which originates from a blue nevus, a nevus which is completely of connective tissue origin.

At least 90 per cent of nevi in children are of the junctional variety; however, as we will show later, the junctional nevus of the child differs greatly histologically from that which is observed in adults. It is felt that this great difference in histological patterns is due to endocrine influences exerted at the time of puberty. About 10 per cent of nevi in adults are of the junctional type. A familiarity with the histogenesis of nevi will explain this confusing point. If we were to examine histologically a junctional nevus in a child, we would see numerous inactive nests of melanoblasts in the dermo-epidermic border (Fig. I). At the time of puberty these cells become increasingly active and present an entirely different picture from that seen in the junctional nevus of a child. The melanoblasts of an adult junctional nevus proliferate rapidly and, in so doing, many of these cells drop into the dermis. If the overlying junctional changes persist, the resulting tumor is a

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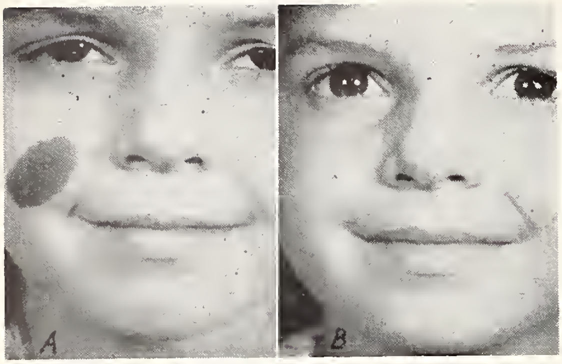


CASE I.

(A). A junctional nevus in an infant. This has been present since birth.

(B). One year following excision and primary closure.

compound nevus with both junctional and intradermal elements. If the junctional proliferation subsides, the nevus is converted into an intradermal nevus. This explains, then, the great reduction in the incidence of junctional nevi; that is, many are converted into intradermal nevi. To summarize, it is apparent that the junctional nevus of childhood may,

1. Completely disappear,
2. Remain as a junctional nevus throughout life, with the potential power of undergoing malignant transformation,
3. Develop into an intradermal nevus,
4. Develop into juvenile melanoma.

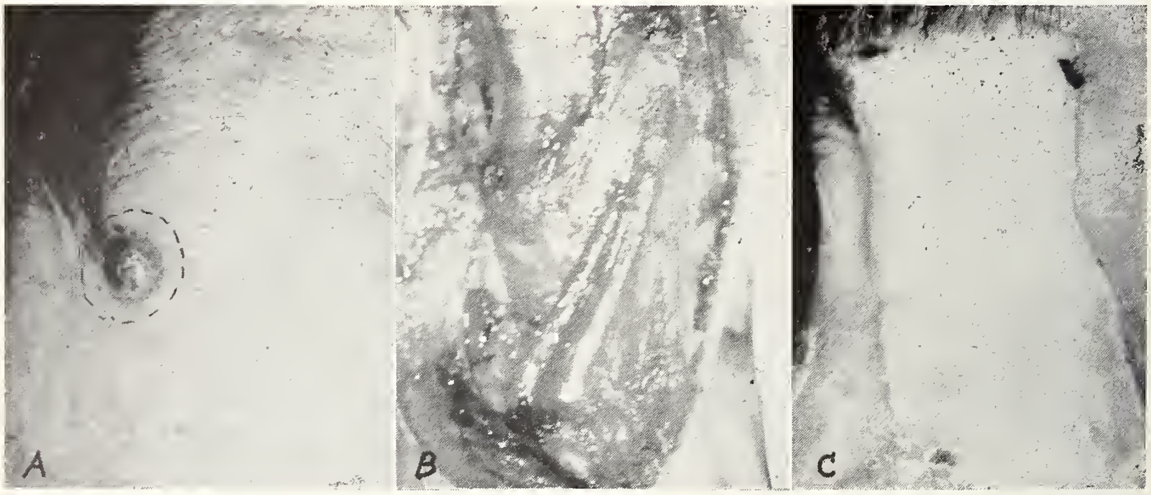
JUVENILE MELANOMA

Juvenile melanoma is a tumor which clinically behaves in a benign manner but when examined microscopically presents a picture almost identical to melanoma[7]. It is felt that the benign course of this tumor is due to a lack of endocrine influences. A review of the world literature reveals only six cases of juvenile melanoma which manifested metastases to the regional lymph nodes. Of these six cases, only two resulted in death. This information is present to stress the relative benignity of juvenile melanoma and to emphasize that these tumors can be adequately treated by wide surgical excision.

THE INFLUENCE OF THE ENDOCRINE GLANDS UPON THE CLINICAL COURSE OF NEVI

It is generally agreed that the endocrine glands exert an undesirable effect upon the course of nevi and melanomata. The following observations are offered to support this view:

1. There are cases on record of congenital melanomata in which the mother was free of disease but the child died of melanoma several months after birth.
2. There are cases on record in which the disease affected both the mother and child, presumably by transmission through the placental membranes.
3. Reference has been made to the benign



CASE II.

(A). Melanoma affecting the skin of the posterior neck in a young woman three months pregnant.

(B). Shows extent of the excision.

(C). The final result. The course of the disease was extremely fulminating and resulted in the patient's death when she was eight months pregnant. In this case, an attempt was made to deliver a living baby at the time the patient expired. A Caesarean section was performed at the time of death but a living fetus was not conceived. The rapid course of the disease in this particular case is in keeping with the teaching that melanoma in pregnant women is probably the most lethal tumor known to man.

course of juvenile melanoma. It is believed that this is due to a relative lack of hormonal influence.

4. The hyperpigmentation of the genitals and of the mammary areolae at the time of puberty is due to the increased activity of the melanin producing cells.
5. At the time of puberty there is also an increase in pigmentation of existing nevi, as well as an actual increase in the number of nevi.
6. In Addison's disease there is hyperpigmentation of pigmented nevi.
7. It has been shown that massive doses of ACTH or cortisone may result in significant generalized hyperpigmentation of existing nevi, and, may initiate the actual production of new junctional nevi.
8. The five-year cure rate in patients of twenty-five years or under is about one-half that in patients of older age groups.
9. Melanoma in the pregnant woman is probably the most lethal type of cancer known to man (Fig. II).

THE CLINICAL FEATURES OF NEVI AND MELANOMATA

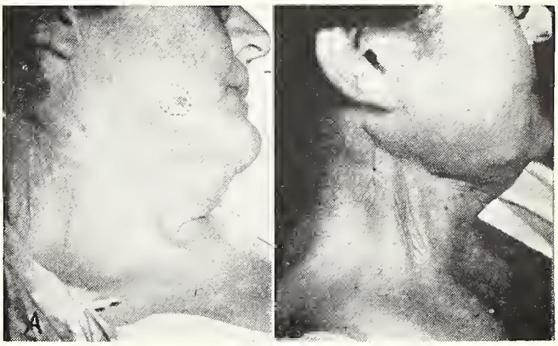
The intradermal nevus may be smooth or papillary, hairy or non-hairy, and of various shades of brown. More commonly it is raised above the surrounding skin, contains hairs over its surface, and is dark brown in color. The presence of hairs over its surface is strong evidence that the tumor is probably of the intradermal variety. There is no certain way of knowing, however, that the intradermal nevus as described above is not a compound nevus. A junctional nevus characteristically is flat with the skin margin, non-hairy, and light brown. Experience has proved, however, that the teaching that only the flat, dark, hairless nevi are capable of transformation into melanoma is erroneous for it is impossible to be absolutely certain clinically that a given tumor is or is not a junctional nevus. The following physical alterations of a nevus almost always indicates a malignant transformation:

1. Increase in size
2. Increase in depth of pigmentation
3. Pain
4. Itching
5. Ulceration
6. Bleeding
7. Crusting

FACIAL MELANOMA

Quite surprisingly, the incidence of melanoma of the face is in the region of 30 per cent[8],[9],[10],[11]. A review of the five-year surgical cure rates of the past ten years reveals clearly that this figure is much lower than the cure rates for melanoma on other parts of the body. It is felt that this low cure rate is due to the following reasons:

1. Hesitancy of patients to submit themselves to surgical excisions and also a hesitancy on the part of physicians to recommend such therapy.
2. Substitution of methods of therapy which are known to be inadequate.
3. A reluctance on the part of surgeons to attack facial melanoma courageously for fear of producing facial deformities.



CASE III.

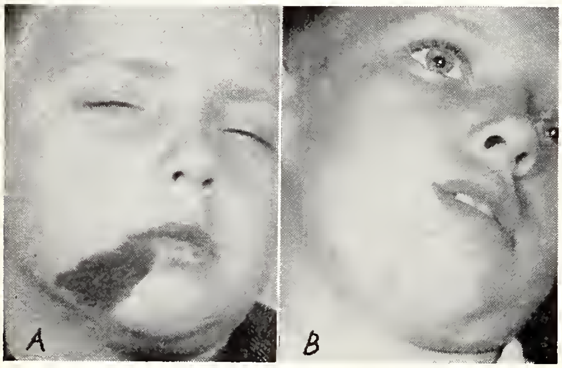
(A). Melanoma of the face in a middle-aged woman. Because of increase in size, and slight bleeding, the patient submitted herself for examination. This tumor lends itself well to wide excision and neck dissection done in continuity.

(B). Postoperative view of the same patient following the above mentioned operation. The patient is well and free of disease eight years postoperatively.

There is great reason to believe that melanoma of the face should enjoy survival rates at least equal to, if not better than, melanomata found on other parts of the body (Fig. III). Nevi of the face are visible, thus the patient is aware of their presence. The physical alterations are readily detected. In men, shaving is a constant source of irritation which might well lead to malignant degeneration. Thus the importance of excising nevi of the face in men is readily appreciated. The anatomy of the head and neck is such that this region lends itself well to adequate surgery. In patients with facial melanoma, the primary tumor can be treated by the combination of wide excision and neck dissection in continuity..

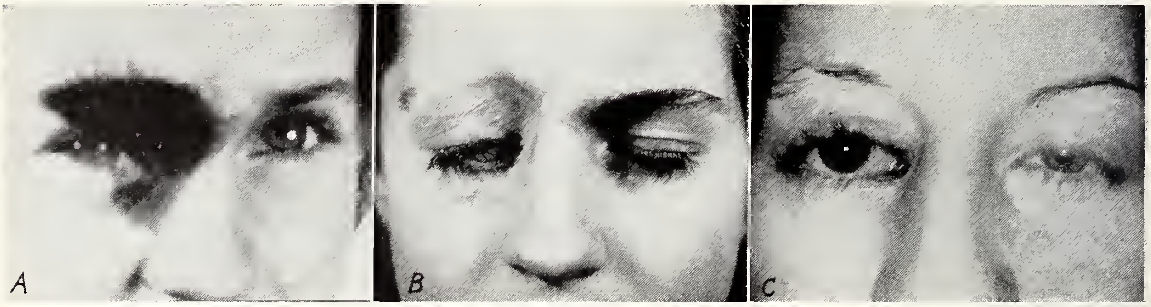
TREATMENT OF NEVI

The substitution of desiccation, cautery, caustics, electric needle, CO_2 snow, and acids undoubtedly leads to a low cure rate in facial melanoma. These methods of therapy should be completely abandoned and surgical excision substituted for all suspicious nevi of the face. The above mentioned methods of therapy deprive the physician of active histological diagnosis and, more important, may actually stimulate malignant transformation. Many facial nevi may be removed primarily for cosmetic purposes (Figs. IV and V). All flat nevi, presumably of the junctional variety, should be surgically excised. By adopting this surgical attitude the incidence of melanoma can definitely be lowered. Juvenile melanomata should be widely excised but the more radical procedures, including lymph node dissection, are unnecessary. Should a patient with juvenile melanoma be permitted to reach puberty then the course of the disease becomes that of melanoma. It is therefore important to surgically excise all suspicious nevi prior to the onset of puberty. All nevi found on the palm of the hand, sole of the foot, and genitalia should be surgically excised. These nevi are all of the junctional variety and there are no instances on record of intradermal nevi affecting these parts. Adequate treatment for facial melanoma is wide excision combined with neck dissection and removal of all intervening structures as mentioned previously. This treatment is recommended even though the cervical lymph nodes are not clinically palpable. By employing the modern principles of plastic repair, facial deformity can be kept to a minimum. In treating melanomata on parts of the body other than the face, the treatment of choice is wide excision, including subcutaneous tissue, deep fascia, and regional node dissection. This procedure should be done in continuity whenever feasible. In the case of the extremities, if tumor and regional nodes are far removed (foot, leg, hand, forearm) we prefer to carry out a wide excision with application of a split thickness graft and to observe the patient closely. In the event of ensuing regional node adenopathy, a regional node dissection is then carried out. In cases where tumor and regional nodes are not distantly related, the principle of wide excision and regional node dissection in continuity is adhered to (Fiv. VI). Melanomata of the torso are treated by wide excision and application of split thickness graft. Regional node dissection is not carried out unless there are clinically palpable nodes (Fig. VII). Metastases from these areas of the torso may be either to the inguinal or axillary chain of nodes, consequently, the impracticability of node dissection in the absence of palpable nodes.



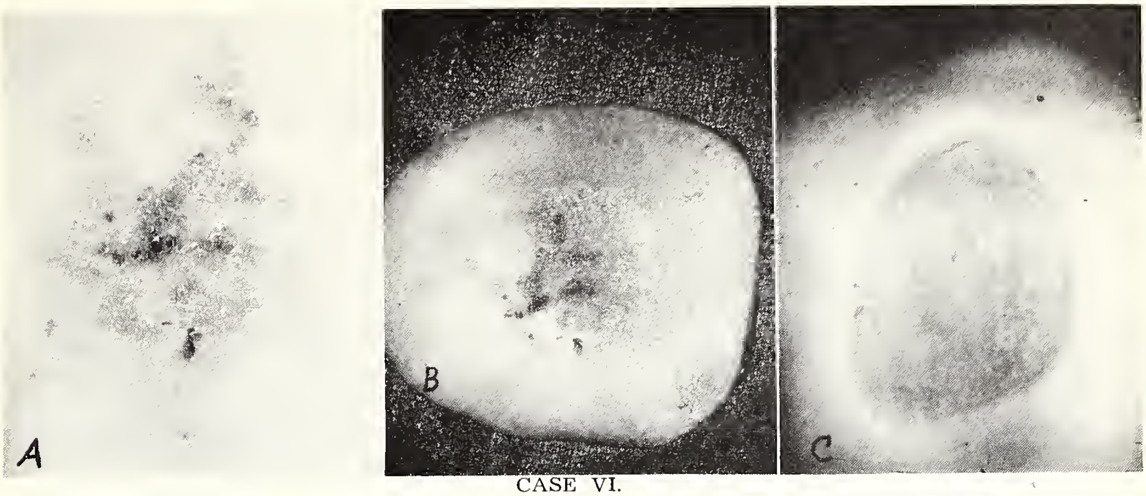
CASE IV.

(A). A nevus in a young boy producing considerable deformity.
(B). End result following excision and resurfacing by a rotation flap.



CASE V.

(A). A hairy nevus in a young girl involving the eyebrow and a large portion of the skin surrounding the right eye.
(B). The same patient following excision of the hairy nevus and resurfacing with a full thickness post-auricular skin graft. Notice partial absence of the right eyebrow.
(C). End result shows reconstruction of eyebrow with a free graft from the opposite eyebrow.

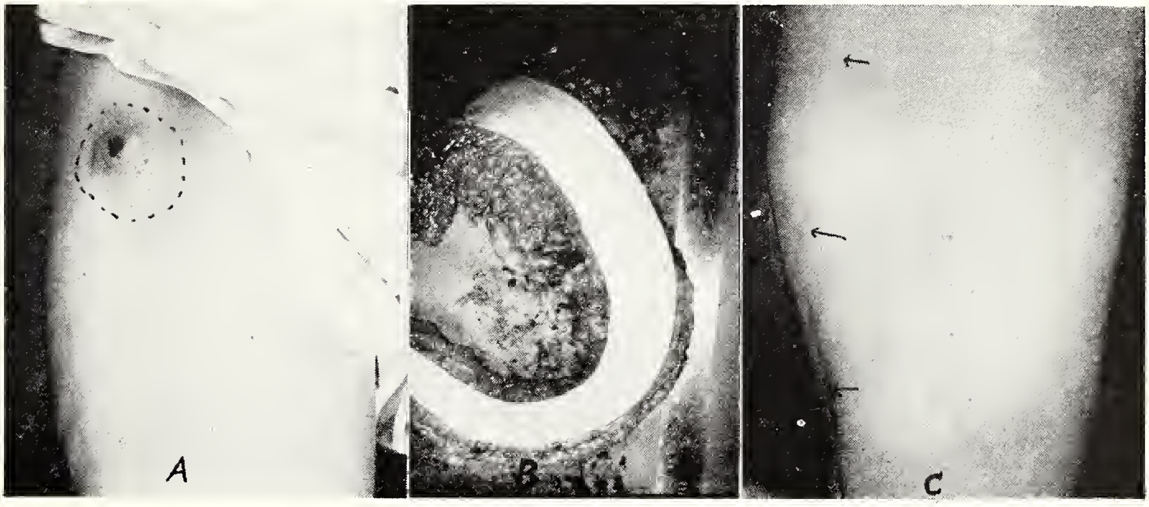


CASE VI.

(A). Melanoma of the skin of the upper back in a middle-aged woman. The tumor was present directly in the mid-line.

(B). The resected specimen. The tumor occupied an area 2.0 by 1.5 inches. The resected specimen measured 5.5 by 4.0 inches.

(C). Postoperative view of the same patient. Wide excision with application of a thick split-thickness graft was carried out and a regional node dissection was not done. Melanomata in this area may metastasize to both axillae, both inguinal nodes, in addition to penetrating directly through the chest wall. These patients are observed carefully for evidence of metastases to regional nodes. This patient is well without evidence of disease four years postoperatively.



CASE VII.

(A). A melanoma of the medial aspect of the thigh in a middle-aged woman. This patient gave a history of a nevus being present in this region all of her life. Six weeks previously the patient noticed a slow, gradual increase in size, increase in depth of pigment, and occasional bleeding. There were no palpable nodes in the inguinal region.

(B). Resected specimen which shows the extent of the excision. This type of case lends itself well to wide excision and regional node dissection with removal of intervening structures done in continuity. The tumor and a large strip of skin, including subcutaneous fat and deep fascia, extending to the regional nodes, together with the entire chain of lymph nodes, was excised in one procedure.

(C). Postoperative view of the same patient. The patient is alive and well without evidence of disease eight years postoperatively.

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Post-Gastrectomy Anemia*

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With passing years surgeons have removed man's stomach with increasing freedom so that now this organ can no longer be deemed indispensable. Subtotal and total gastrectomy though seem a small price to pay for the relief of painful and obstructing neoplasms of the esophagus and stomach as well as the relentless and intractable ulcerative processes of the stomach and duodenum. In the majority of instances patients are grateful for the surgical intervention with those having subtotal gastrectomy getting along with surprisingly little difficulty. A few complain of inability to gain weight with or without symptoms of the so-called "dumping syndrome." Those having total gastrectomy fare not so well by virtue of the more serious primary disease demanding surgery and the more drastic alteration of digestive physiological processes. These disturbances of gastrointestinal function following surgery are responsible for varying degrees of nutritional deficiencies and anemia states which we see with increasing frequency in daily practice. A consideration of these anemia states and their management seems pertinent.

In considering the various functions of the stomach which are disturbed in partial gastrectomy, four seem important. 1) Reservoir function. 2) Digestion of food. 3) Trituration of food. 4) Acid production. By means of the reservoir function the stomach retains ingested food during the time that it is being prepared for delivery to the small intestine. This gastric chyme enters the intestine intermittently in small amounts. When this reservoir function is lost, food leaves the stomach rapidly in large quantities and in an unprepared state. By means of its triturating function, the stomach breaks its morsels of food into fine particles which are easily attacked by the digestive enzymes of the gastrointestinal tract. When this function is impaired, large pieces of food which are not so readily digested and which may be irritating are passed on to the small intestine. The stomach performs its digestive function by beginning the breakdown of protein and fat. In total gastrectomy additional factors to those above which would seem responsible for disturbances of digestion and the development of anemia are: 1) decreased stimulation of the pancreatic and biliary secretions, 2) increased intestinal motility, 3) inadequate mixing of food with pancreatic and biliary secretions, 4) lack of intrinsic factor.

Hypochromic microcytic or iron deficiency anemia following partial resection of the stomach is not as common as believed. In large series of cases such anemia has occurred in only 12 to 21 per cent of cases[1],[2]. Most of us have the mistaken idea that such iron deficiency is a direct result of the achlorhydria produced by the surgery but in reality this may not be true. Bockus[3] believes these patients are on a deficient diet with faulty iron absorption from the ingested food being due primarily to rapid bowel motility. Hypochromic anemia rarely develops in the young male adult who is operated on for duodenal ulcer in the absence of severe diarrhea, bleeding, or a dietary deficiency. However, such anemia is more frequent in women at or near the menopause. Modern popular partial gastric resection techniques with 66 to 80 per cent resection aim to remove the larger part of the acid-producing area with subsequent production of achlorhydria. Winkelstein[4] reported an achlorhydria almost invariably after resection for gastric ulcer but only in 50 per cent of cases when resecting for duodenal ulcer. This latter figure is much greater than Bockus reports but approximates that of Banche[5]. It is apparent that partial resection fails to produce achlorhydria in many instances and that hypochromic microcytic anemia develops in the presence of persisting acid. Likewise, Moore and associates[6] discovered that the water soluble highly ionized ferrous salts are equally well absorbed in the presence or absence of hydrochloric acid. Quigley[7] found iron salts to be absorbed at almost a normal rate in gastrectomized dogs lacking acid secretion. It is also well known that achlorhydria is found in six per cent of healthy young adults 20 to 40 years of age and increases with advancing age having been found in 30 per cent of patients without gastric disease between ages of 60 and 70 years. Of these two groups not more than one-third will show a tendency toward any anemia[8]. These facts add weight to the belief that achlorhydria is not the major fault in this anemia but rather the increased intestinal motility and inadequate absorption of dietary iron.

Regardless from a practical standpoint hypochromic microcytic anemia responds readily to inorganic iron in the form of ferrous sulfate 3 to 5 grains, reduced iron 0.5 gm., ferric ammonium citrate 4 cc. of a 50 per cent solution, and Blauds pills 3 to 5 pills—all three times daily. Although the exact mechanism of iron absorption is not precisely known, iron is believed to be absorbed in the ferrous state with absorption occurring in the mucosal cells of the stomach and duodenum by the combination of a protein, apoferritin, to form ferritin which ultimately passes the iron to the plasma. Dietary iron is present in both the organic and inorganic states with the inorganic being much more important. The average daily American diet contains only 10-30 mgm. of inorganic iron of which only 10 per cent is absorbed. Iron absorption may temporarily increase with the simultaneous oral administration of large quantities of reducing substances such as ascorbic acid 100-300 mgm. per day. Cobalt with iron has been shown to be effective in the treatment of iron deficiency anemias of pregnancy and in anemias of prematurity and infancy[9]. Whether such a combination is more efficacious than iron alone in post-gastrectomy cases remains undetermined. But since response to iron is good there seems to be really no necessity for potentiating its effect with cobalt. The use of foods with high iron content such as beef- liver, eggs, apricots, peaches, and molasses is indicated in combination with a bland high protein and caloric (2500-3000) diet divided in multiple feedings. These dietary measures may delay hypochromic anemia but chief reliance is placed upon iron salts. Most cases show a more rapid regeneration of blood and maintain a normal blood count more satisfactorily if Vitamin B complex in the form of Brewer's yeast or similar preparation is administered. Authorities have long debated the efficacy of dilute hydrochloric acid but most contend its use is quite unnecessary. Iron deficiency anemia is generally not seen in the immediate convalescent period if surgical blood loss was corrected but develops in the ensuing nine to twelve months. Iron therapy is withheld until an anemia appears, although there is no contraindication to its prophylactic earlier use except expense-wise.

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In the post-convalescent period following total gastrectomy, one's main objective is that of maintaining adequate caloric, protein, and fat intake. As Brain and Stammers[10] have shown the usual dietary intake following total gastrectomy is not usually as great as that of even a comparatively normal individual. Paradoxically because of the impairment of protein and fat assimilation following this operation, these patients must ingest larger quantities of foods than normal if they are to reach an optimal nutritional state. Those underweight prior to surgery offer the greatest problem in this regard as well as showing the greatest incidence of dumping. In many instances the ingestion of such quantities becomes a major problem. The patients must literally force themselves to eat most of the time if they are to achieve a relatively normal nutritional status. Unfortunately many patients of poor economic and social status resign themselves to sub-par nutritional levels rather than eat the large quantities of food required. A satisfactory dietary program is that of a minimal caloric intake of 50 calories per kilogram of body weight, a minimal daily fat intake of 200-250 grams, a minimal daily protein intake of 100-115 grams, and a maximal carbohydrate intake of 200-250 grams providing 3000-3750 calories per day. The patient should be instructed to chew all solid food well. Because of the possibility of a dumping syndrome, fluids with meals should be limited and taken after eating. Numerous small feedings should follow gastrectomy rather than the usual routine three large meals. Pancreatic extract and multi-vitamins are often of definite value. Hypochromic microcytic anemia resulting from a nutritional deficiency state is almost invariably seen in these cases in the first few months following surgery. Early use of oral iron preparations as discussed heretofore is required with response being usually satisfactory. Rarely with intractable vomiting or severe dumping after total gastrectomy, intravenous saccharated iron oxide may be necessary. This compound is relatively non-toxic when administered carefully, although anaphylactoid reactions and death have occurred.

That hyperchromic macrocytic anemia may be a late complication of total gastrectomy in man is well known. However, in experimental animals total gastrectomy does not cause the blood picture of pernicious anemia or combined spinal cord degeneration, stomatitis, or glossitis during a year in the rat, twelve years in the dog, three years in the pig, and two and a half years in the monkey[11]. Much confusion has existed in this regard with Bockus stating that the relationship between primary pernicious anemia and gastric resection performed for peptic ulcer was no more than casual. Recent work with radio-active Vitamin B_{12} has largely resolved this mystery. Intrinsic factor, a protein enzyme, is essential in man for the absorption of the small amount of Vitamin B_{12} normally present in the diet, either by protecting it from destructive forces in the intestine or by facilitating its passage through the intestinal wall. There is evidence that the stomach is the only site of secretion of intrinsic factor[12]. Following total gastrectomy the human would be expected to experience difficulty in the absorption of Vitamin B_{12} and eventually to manifest a Vitamin B_{12} deficiency. Difficulty in absorption can readily be demonstrated by giving such patients small oral doses of radio-active Vitamin B_{12} and calculating the amount of radio-active material excreted in the stool[13]. In the gastrectomized patients most of this dose subsequently appears in the stool, whereas in normal persons a considerable amount is absorbed. The administration of a source of intrinsic factor together with the radio-active Vitamin B_{12} results in improved absorption and lessened fecal radio-activity. From these observations it is seen that patients with total gastrectomy do not absorb Vitamin B_{12} from dietary sources, so why isn't macrocytic anemia always seen? Four factors may explain this paradox. 1) It is sometimes technically difficult to excise the cardiac end of the stomach above the esophago-cardiac junction and 1 or 2 cm. of cardia may be left behind with these cases reported as total gastrectomies. Since the cardia is an active site of intrinsic factor secretion, a small segment might secrete enough for normal use of Vitamin B_{12} from the diet. 2) Not many patients survive operation long enough for macrocytic anemia to develop. 3) Clinical evidence suggests that Vitamin B_{12} may be stored in the liver for long periods with the tissues of a healthy adult containing from 1000 to 2000 micrograms of Vitamin B_{12} [14]. The human requirement is not over 1 microgram a day or less than 0.5 mgm. per year. Thus liver storage in the patient who has had a total gastrectomy may be sufficient for several years. A review of twelve cases of macrocytic anemia of pernicious anemia type among forty-six patients with total gastrectomy by Halsted[15] showed that this anemia appeared four years or more after surgery in nine and six months after stopping liver extract in one. Hall[16] describes a case of megaloblastic anemia which developed three years after total gastrectomy while McDonald[17] described two cases after two and five years. A review of nine total gastrectomies performed at the John Gaston Hospital and the Gastroenterology Clinic in the interval 1947-1954 reveals two patients surviving their original disease. The first patient operated for a suspicious benign gastric ulcer developed a hyperchromic macrocytic anemia after five years while the second operated for proven adenocarcinoma of the stomach showed the same anemia after three years. 4) Probably the most important reason that only a few patients who survive total gastrectomy manifest a macrocytic anemia is that anti-anemia preparations containing Vitamin B_{12}, iron, folic acid, and multi-vitamins are prescribed. Even if the surgeon does not advise these medications most patients receive them from their own physicians. The practical implications from the above facts are that immediately following surgery total gastrectomy patients are considered as being in a state of relative Vitamin B_{12} deficiency without anemia as yet. Parenteral injections of Vitamin B_{12} 30-50 micrograms monthly should be used regularly and prophylactically to avoid the late development of hyperchromic macrocytic anemia. Oral Vitamin B_{12}—intrinsic factor combinations as well as oral Vitamin B_{12} in massive doses are now available but these are far too expensive for prolonged daily use and seem more burdensome and unpredictable than a once monthly injection of Vitamin B_{12} at the present time. Crude and refined liver extracts offer no benefit over Vitamin B_{12} and are less desirable, costing more and causing occasional allergic reactions. Wide spectrum hematinics obscure the hematological picture and are to be condemned.

SUMMARY

Hypochromic microcytic anemia follows subtotal gastrectomy in 12-21 per cent of cases with prompt response being usually seen to iron therapy. Total gastrectomy is almost invariably followed early by iron deficiency anemia too as well as nutritional deficiency states unless adequate dietary measures and substitution therapy are initiated. Hyperchromic macrocytic anemia may occur late after total gastrectomy with depletion of body Vitamin B_{12} stores. Routinely oral iron preparations and parenteral Vitamin B_{12} should be administered in the post-surgical period and continued indefinitely.

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Recent Advances in Steroid Therapy of Rheumatoid Arthritis[*]

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During the past several years there has been an increasing realization of the social and economic problem imposed by rheumatic diseases in our population. Almost every country has reported data which reveal that the economic loss evoked by these diseases is almost astronomical; they are the commonest cause of protracted illnesses. It is estimated that at least one in every 20 persons in the United States is suffering with some type of these diseases and of this number, about 5,000,000 have rheumatoid arthritis[1].

Although spectacular strides have been made in the evolution of treatment of rheumatoid arthritis, there still is little known concerning its pathogenesis. The great stimulus evoked by the observation of the beneficial therapeutic effects of cortisone and corticotropin in 1949 will remain a milestone in the science of medicine[2]. With this impetus, together with an augmented public demand, there has been recently accomplished increasing amounts of research data concerning the etiology and treatment of this disease.

The dramatic symptomatic relief afforded by cortisone has prompted some clinicians to use these drugs routinely in the treatment of rheumatoid arthritis. There has now elapsed sufficient time to evaluate some of the results of such a widespread therapeutic trial. It is from such knowledge that our new concept as to the status of these drugs in the therapy of this disease has evolved.

Certainly not all individuals suffering from rheumatoid arthritis respond satisfactorily to cortisone, corticotropin, or hydrocortisone therapy; only about 75 per cent obtain satisfactory relief of symptoms. Then, again, 10 to 15 per cent suffer undesirable side effects severe enough to cause discontinuance of the drugs, while approximately 15 per cent experience insufficient relief to warrant their continued use. Some investigators have estimated that not over 25-35 per cent of patients can be maintained in satisfactory remission for two years or more with these drugs[3],[4]. Ironically, each year the reported number experiencing satisfactory therapeutic results appears to decrease regardless of the present excessive demand for these drugs.

Most clinical investigators also now agree that probably the early, large, suppressive doses of hormonal drugs originally recommended are not indicated, but that the initiating dose should be small, closely approximating that of the maintenance dose. Similarly, during the past few years there has been a change in the concept of adequate daily dosage of these hormones. The recommended daily dosage approaches that of the estimated normal production of the steroid by the adrenal cortex. The presently recommended dosage of cortisone is that less than 10 mgs. per day is adequate for children under 10 years of age; in adolescents, 10-20 mgs.; premenopausal women, 30-37½ mgs.; postmenopausal women, 25-30 mgs., and men, 37.5 to 50 mgs. per day.

There is good evidence that hydrocortisone, rather than cortisone, is the principle normally endogenously produced glycogenic steroid. The anti-rheumatic potency of hydrocortisone is approximately one and one-half that of cortisone. It

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is thus apparent that smaller doses of hydrocortisone as compared to that of cortisone are needed for the control of symptoms of rheumatoid arthritis, with a resultant decrease in the incidence of undesirable physiological effects from such therapy[5].

The use of hydrocortisone instilled directly into the involved joints is one of the most significant advances in the management of individuals with rheumatoid arthritis. This adjunctive mode of therapy is of exceptional use in alleviating the articular inflammatory reactions. Local relief, though transient, may be accomplished in a high percentage of individuals (80-90 per cent). Such a mode of therapy is frequently successful in evoking relief of pain and discomfort in an involved joint that has not responded to gold or systemic steroid therapy. Likewise, such treatment may be used in individuals in whom systemic steroid therapy is contraindicated. Recently Hollander has shown that HYDROCORTISONE TERTIARY BUTYL-ACETATE and PREDNISONE TERTIARY BUTYL-ACETATE produce a more durable clinical response; up to 60 per cent longer than hydrocortisone alone[6]. Contamination of the joint space with pyogenic organisms with resultant purulent arthritis is a distinct possibility with such therapy. Likewise, the masking of an otherwise incipient joint infection, *i.e.*, tuberculosis, with the injected steroids may occur.

Biochemists advanced the idea that the development of new synthetic steroid compounds in which desirable physiologic actions could be potentiated and the undesirable effects minimized by minor modifications of their formulas was theoretically possible. It was obvious that with the development of such compounds, treatment of this disease state with these steroid compounds would prove more satisfactory.

One of the first of these synthetic steroids to become available for clinical trial was a halogenated derivative of hydrocortisone, 9-ALPHA-FLUOROHYDROCORTISONE ACETATE. This drug has been shown to have exceptional anti-inflammatory and salt retaining activity. Its anti-rheumatic activity is roughly 10 times greater than that of hydrocortisone. However, even though a very small amount of the drug is administered (3 to 7 mgm. daily), signs of increased electrolyte retention rapidly become evident. Fluid retention and hypertension are commonly observed in the patients treated with this compound. Such undesirable effects have precluded its use in systemic therapy of arthritis[7]. Similarly, intra-articular injection caused increase in joint fluid and edema of adjacent structures.

A short time later, two additional synthetic cyrstalline steroids, PREDNISONE and PREDNISOLONE were introduced. Bunim and co-workers have reported their observations on the therapy of rheumatoid arthritis with these two compounds[8]. Like hydrocortisone and cortisone these new steroids are suppressive and not curative; relapse soon follows their withdrawal.

The clinical results of such therapy demonstrated that these drugs possess a remarkable anti-inflammatory effect much greater (3 to 4 times) than that of cortisone and hydrocortisone with little or no electrolyte activity. Here, again, undesirable physiological effects of the drugs may preclude their extensive use. The well recognized symptoms of Cushing's syndrome, significant in their absence in early therapy, may appear after prolonged use of these agents, especially after large doses. A negative nitrogen balance manifest by the early development of osteoporosis is always a possibility. The occurrence of exacerbations of peptic ulcers has been particularly troublesome. The mental aberrations seen after cortisone therapy have also been noted after prednisone administration. One of these newer derivatives, prednisolone, has only recently become available for clinical usage; therefore, clinical experience with this drug is still in its infancy.

Certainly, with such an auspicious beginning, more such compounds will be forthcoming, and it is within the realm of possibility that the undesirable physiological effects which have severely limited the use of these drugs in clinical practice may be minimized in the future. Such an ideal anti-inflammatory steroid would offer much in the treatment of rheumatoid arthritis.

It is now recognized that steroid therapy frequently fails to terminate the pathological process of the disease. In fact, x-rays reveal progression of the joint lesion, even though symptomatic improvement continues[9]. Then, again, the frequency and the severity of relapse when treatment is discontinued often makes the physician hesitate to begin treatment with these drugs. Likewise, the development of a relative refractiveness in some instances after prolonged administration has to be carefully considered.

A recent report by British investigators has been of interest to rheumatologists. These workers observed two small, but carefully controlled series of patients with early rheumatoid arthritis with a duration of the disease of not less than three months or longer than nine months. They were treated with cortisone and aspirin, respectively. At the end of one year, evaluation of the results of therapy in this series was undertaken. The disease was judged to be inactive or slightly active in about three-fourths of the patients of each group. Conclusions drawn from this evaluation were that there is little to choose between cortisone and aspirin in relieving symptoms or influencing the natural course of early rheumatoid arthritis. However, the steroids apparently had a salutary effect upon the hematological manifestations of the disease[10].

What then is the present status of these drugs in the treatment of rheumatoid arthritis? The concensus is that cortisone, hydrocortisone, and prednisone are highly useful agents in selected individuals suffering with the disease, especially those in whom there is insufficient response to more conservative measures. These drugs, however, are by no means a panacea and should only be used in selected cases. These drugs do not cure rheumatoid arthritis and their value is transitory; their effects last only as long as they are being administered. Certainly the steroids do not repair damaged tissue and it is futile to give them to a patient with deformed and ankylosed joints.

One cannot overemphasize that regardless of all the new drugs that have been introduced in the treatment of this chronic disease entity that such time-tested conservative measures as local and general rest, prevention and correction of deformities, physiotherapy, avoidance of emotional stress and proper nutrition should not be neglected. It has long been recognized that improvement in the disease or even arrest of the pathological process may result from these measures alone.

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There are eight requisites for contented living; health enough to make work a pleasure; wealth enough to support your needs; strength to battle with difficulties and overcome them; grace enough to confess your sins and forsake them; patience enough to toil until some good is accomplished; charity enough to see some good in your neighbor; faith enough to make real the things of God; hope enough to remove all anxious fear concerning the future. —Goethe.

Therapeutic Advancement Versus Regression

WALLACE MARSHALL, M.D.
Two Rivers, Wisconsin

THE ONE obvious and common request put to a programmer for many medical groups is concerned with "What's New." This is the same question which most physicians ask of detail men from pharmaceutical firms. If the representative is lucky enough to have such a new product available, he can be reasonably assured that the prospective customer will listen intently with both ears. It appears the vast pharmaceutical field definitely exhibits trends in medication similar to the fashions in the automotive and also the garment industries.

So-called new ideas have a distinct appeal for the practicing physician no matter what his particular field happens to be. It appears that we doctors enjoy the false authoritative feeling that we may be the first in the community to employ these new medications. Furthermore, we can tell our inquisitive female patients, with much authority, that we have employed a particular new drug when these patients relate just how much they have learned about new medications from the *Readers' Digest* or some other similar source of so-called authentic medical information.

My main reason for writing this communication has been aptly stated by Professor Burch[1]. He wrote: "There is too much gadgeteering in new procedures and too little application of the established fundamental ones in general clinical medicine. The present era seems to be one of applying something 'new' first and evaluating it later. . . . These comments must not be construed as suggesting that medical science remain static, but rather that more care be exercised when new and improved methods are introduced into the practice of medicine."

What does the medical profession itself think about this fetish for newness in therapy? I recently talked with a professor of internal medicine from a well-known midwestern medical school, and I also questioned a famous dermatologist on the same matter. Both physicians agreed that this scramble for new drugs is unwarranted. Relatively few new medications have been proved to be really worthwhile. Many have been shown to be over-rated. Even the most modern of the antibiotics leave something to be desired. The staphylococcus aureus has recently shown a disdain for these high-powered therapeutic agents. This bacterium can be treated more adequately with certain forms of the sulfa drugs which had fallen into disrepute because of the appearance of the antibiotics and the reports of damage to the kidney tubules by the sulfas.

We note the paucity of recent observations on the use of cortisone and similar drugs for the treatment of certain forms of arthritis. We are witnessing the return of the lowly medication called acetylsalicylic acid which had been lost in the mad scramble for the so-called wonder drugs.

These current opinions which are beginning to favor the return of the older but perhaps far more reliable drugs are noted also by the rural physician. I have had the recent opportunity to discuss the revival of the older drugs with some of the rural physicians in Mississippi and Alabama. These men reported similar observations.

The author became interested in questioning specialists and general practitioners alike when various speaking engagements and medical meetings took him throughout the country. I have yet to meet a physician who did not agree that many of the older drugs and combinations thereof should be revived for daily use. All the doctors felt that many of these older therapeutic agents should be employed more often. The concensus of opinion was that the terrific pressure of employing new medications was produced by many pharmaceutical firms in order to promote these new items to compete with rival drug concerns. Therefore, many of the time-honored medications have fallen into disuse because of this unwarranted trend to newer products.

Ouabain is a wonderful drug which can digitalize a patient very rapidly. It is available in ampule form for parenteral medication so that a patient can be digitalized quickly. Yet I shall venture to state that very few young doctors have even heard of this drug. Yet, most of the older physicians have used it years ago with excellent results. Why did ouabain fall into disuse? This happened because of the constant race the pharmaceutical industry stages for newer drugs. The isolation of the glucosides of digitalis sounded the death-knell for ouabain and other splendid time-honored cardiac preparations such as strophanthus, the squills, theophylline and the like. The fresh leaves of digitalis have not been surpassed as a proper and reliable cardiac drug. Yet the modern market has become glutted with variations of this drug.

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[1] Burch, G.: Cardiology for the General Practitioner. J. A. M. A. 157: 1073, 1955.

Methenamine* is another useful drug which is commonly overlooked. Just the past week, I recall three patients with identical cases of cystitis which did not clear with the use of multiple types of antibiotics. However, each case cleared rapidly within a week's time when a methenamine preparation* was prescribed for each patient.

This same preparation, consisting of methenamine combined with soothing agents, has also been helpful in older patients with chronic urinary infections associated with urinary retention. It clears the infected urine and gives quick relief from burning urination. In chronic cases, it can be given with safety and without drug-fastness over long periods of time. The older physicians know from long experience the advantages of this older medication over the newer drugs in these chronic cases.

Atropine and the belladonna-like medications have been displaced by more modern drugs which are costly but which do not exert too much in the way of therapeutic success when compared to their old-fashioned counterparts. Even sweet spirits of nitre has become forgotten. Older physicians will recall the excellent therapeutic results when this medication was employed to treat the suppression of urination. One can go on indefinitely in recalling many of the older drugs which have yet to be surpassed by the so-called modern wonder drugs.

The author recalls but one such drug which has succeeded in making a therapeutic comeback. That drug is hyoscyamine. One drug firm has used it in 1/1000 grain doses. One might as well, as the old saying goes, "spit in the ocean" if he expects to obtain an adequate therapeutic response with such an infinitesimal dose. The average dose of hyoscyamine hydrobromide is 1/150 grains. It now appears that the drug industry is realizing the value of this drug. And they are now using it with its proper dosage. The author has attempted to awaken the drug industry to the therapeutic advantages of hyoscyamine.

One can relate the proved clinical value of the older drugs without too much difficulty. The reader can easily recall his many successes with the use of certain favorite prescriptions which he has employed throughout the years. One certainly need not feel old-fashioned in his therapeutic approach to his medical problems if he resorts to the older drugs. As a matter of fact, it is my belief he is using sound judgment and reasoning. Furthermore, he is not forgetting the pharmacopoeia which certainly remains the basis for proper therapy.

The author wonders if we physicians are not regressing a bit by forgetting the use of time-proved medications in our continual search for newer and better drugs. The promiscuous use of the newer unproved drugs may prove later to be quite useless. The practice of medicine cannot advance properly unless proper medications are employed.

A physician who has learned to use a particular older medication wisely appears to be far ahead of the medical dabbler or neophyte who insists upon using the many newer drugs indiscriminately just because some detail man succeeded in selling him on a miraculous new super drug!

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*The methenamine preparation used was Urolitia, manufactured by the Borcherdt Malt Extract Company of Chicago.

It is not knowledge that moves the world, but ideals, convictions, the opinions or fancies that have been held or followed; and whoever studies humanity ought to study it alive, practice the vivisection of reading literature, and acquaint himself with something more than anatomies which are no longer in use by spirits. —Woodrow Wilson

Retrolental Fibroplasia*

(Retinopathy of Prematurity)

LEE L. HASSELTINE, M.D.
Corinth, Miss.

Retrolental fibroplasia, or RLF as it will be referred to in this paper, is high among the causes of blindness in children and, next to death, is the foremost problem in the care of premature infants.

The first report of the disease in this country was made by Terry, T. L., in 1942, implicating the administration of oxygen to premature infants as the cause for RLF.

Since then there has been much experimentation with animals (puppies, kittens, and rats).

A diagram will show the relationship of the development of the retinal vessels in the newborn kitten, puppy, and four-day-old rat, and that of the human fetus. It was found that subjecting these animals to high concentration of oxygen, 70 per cent or more produced retinal vascular changes comparable with RLF.

It is believed that oxygen elevates the choridal oxygen tension which eliminates the normal anoxic growth stimulus The growth of the retinal vessels is thus attenuated or obliterated. When oxygen is replaced by normal air there is an anoxemia which stimulates the retinal vessels to rapid growth. Since their normal growth channels have been obliterated they grow rapidly in a tortuous disordered manner and may erupt into the vitreous. This does not occur in the full-term fetus where vascularization is complete.

A very definite relationship between the birth weight and the period of gestation and the occurrence of RLF exists.

A study made on a large group of infants in New York State is of interest. It showed the incidence of RLF decreased from 15.9 per cent in the birth weight group under 1000 gm. to 4.3 per cent in the 1000-1,4999 gm. group and 0.7 per cent in the 1,500-1,999 gm. group. Infants with the shortest gestation period had the highest incidence of visual defects. Under seven months the rate was 7.6 per cent compared with 0.3 per cent for eight months or more.

In the past twenty years survival among prematures improved 30 to 50 per cent. Blindness, among these prematures, has increased 500 to 1000 per cent.

The retina of prematures is pale and little vascularized. About the third week retinal vessels multiply and the retina assumes a full-term appearance. Disease is first noticed between the third and sixth week, rarely later and never after the twelfth week. Repeated examinations at short intervals are necessary as the disease is difficult to recognize.

Clinically RLF may be divided into the Active Phase, the Period of Regression and the Cicatricial Phase.

The Active Phase may be divided into five stages.

Stage 1. The Vascular Stage

This is usually the earliest change seen and is manifested by tortuosity and dilatation of the retinal vessels. The veins may reach a diameter three or four times their normal size and the arteries may become so tortuous that they form hairpin turns. Near the periphery areas of neovascularization are seen. At the end of the vessels, fine, twig-like, delicate, newly formed vessels may be seen.

Stage 2. The Retinal Stage

Here the vitreous becomes hazy so the visualization of the fundus is difficult, neovascularization becomes more profuse, edema and hemorrhages appear in the periphery, and some edema of the disc is present.

Stage 3. Early Proliferation

Here newly formed vessels with their supporting tissues can be seen extending like veils into the vitreous from localized areas of retinal evaluation.

Stage 4. Moderate Proliferation

In this stage the proliferation may cover one side of the globe in a hemispheric fashion producing detachment of the retrolental space. Disseminated retinal hemorrhages and possibly vitreous hemorrhages may occur.

Stage 5. Advanced Proliferation

In this stage the entire retina becomes detached and occasionally massive intraocular hemorrhage may occur, filling the entire vitreous.

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*Presented at the Northeast Mississippi Medical Society, December 1955.

Secondary developments are vascularization and edema of the iris, posterior synechiae, seclusion of the pupil, flattening of the anterior chamber, glaucoma, cataract, esotropia, corneal opacification and eventually microphthalmus and enopthalmus. The latter are caused by inhibition of normal growth of the globe.

The period of regression is an outstanding feature of the disease. It is more frequent in the early stages but has occurred in Stage 5. Complete regression without sequelae is most common if the birth weight exceeds 1,800 gms. and if lesions do not progress beyond Stages 2 and 3. However, there is no way of determining during the active phase those cases in which regression will occur without serious destruction of ocular tissues.

The Cicatricial Phase varies as to the extent of residual destruction. In some cases recovery may occur with no visible clinical changes. Others may show an entire spectrum of residua from small retinal scars to the formation of a completely disorganized retrolental mass.

MANAGEMENT

The management of these cases is first of all preventive and once established it is palliative.

Since all theories concerned with the etiology of RLF, excepting that concerned with oxygen, have not been confirmed, it is felt that a more rational use of oxygen in the management of the premature infant will result in a significant drop in the incidence of the disease.

Oxygen is sometimes a life-saving measure in those infants with cyanosis and definite signs of respiratory distress.

Pediatricians are taking these facts into consideration in the management of newborn prematures. Cyanosis and respiratory distress are still bona fide symptoms requiring oxygen therapy. But there is a growing conviction that irregular or periodic respirations unaccompanied by other signs of distress do not require the administration of oxygen. When oxygen is indicated, every effort should be made to keep the concentration in the incubator below 40 per cent and to discontinue it as soon as respiratory distress is relieved. (Oxygen limiting devices and oxygen analyzers)

Adequate examination cannot be done without adequate dilatation of the pupils and they should be done at least twice a week at first, then once a week later on.

An adequate dilatation can be secured by using a drop of 2 per cent homatropine hydrobromide and a drop of 10 per cent neosynephrine. Atropine is contraindicated in small children. The examination should include the periphery of the fundus.

SUMMARY

In this paper, I have tried to give in a condensed form some of the salient points at present known about RLF.

This disease is high among the causes of blindness in premature infants.

It occurs more frequently in the lower birth weight and shorter period of gestation infants.

Its incidence is definitely influenced by the use of high concentrations of oxygen.

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HOSPITAL FOR CRIPPLED ADULTS

The Hospital for Crippled Adults in Memphis is a unique institution. It is owned and operated by the Rotary clubs of three states. It seems that Dr. Willis Campbell, a native Mississippian, gave birth to the idea. Its service in the field of medicine and surgery is incalculable. Its doors are open to the adult who has no funds at all and Memphis' orthopedists give their services.

Nutritional Anemia of Childhood*

Dennis E. and Mary J. Ward, M. D.
Iuka, Miss.

There are several important differences between anemias of this age group and those of adults. In the infant the hematopoietic system is quite labile with a smaller reserve of mature cells and less room for expansion of blood building tissues. These factors lead to anemia and blood changes in association with diseases and disturbances that would hardly influence the adult. In a study of three thousand cases of childhood anemia the percentage distribution as to incidence and etiology showed 61 per cent to be secondary to infection and 27 per cent due to dietary deficiency. Thus one in every four children had a deficiency in dietary iron. It was assumed from this study that over 85 per cent of children suffering from a blood disorder have as a basis, infection or dietary deficiency or both. It is therefore important to rule out as far as possible an infectious basis for any blood disorder.

It is our major concern here today to consider the 27 per cent of these childhood anemias due to dietary deficiency. This type is more likely to occur during infancy because the basic diet of the infant is milk, which contains little mineral iron. The amount of iron stored at birth is related to the nutritional status of the mother and the length of gestation. Hamilton in 1954, stated that the mother at time of delivery had an iron deficit of 700 mg., this was broken down to include 500 mg. to the baby, 100 mg. in the placenta, and 100 mg. in blood loss at time of delivery. He thus postulated that this deficit should be corrected early in pregnancy. Since supplementary oral iron can only be absorbed at a maximum rate of 5 mg. per day, this therapy should be instituted at least 150 days before anticipated date of delivery. He concluded the problem of hemoglobin synthesis in the pregnant woman, except in a very small percentage of patients, is essentially one of delivering an adequate amount of iron to her bone marrow.

The infant being largely milk-fed maintains a negative iron balance until six months of age. The studies of Deisher in 1954 revealed no significant differences in hemoglobin or red cell counts in infants placed on solid foods at four weeks of age from those which received milk alone. The importance of the early introduction of solid foods is that these babies are accustomed to being spoon-fed by the latter half of the first year and will maintain normal hemoglobin levels. Nutritional anemia will result if the appetite fails, the infant refuses solid food, or is allowed to remain on the bottle too long. The proper nutritional balance is usually maintained in a well-fed child if the bottle is taken away at nine to ten months of age.

Comparatively larger amounts of iron per unit of body weight are necessary for the infant and child than for the adult because the process of growth and development necessitates iron for deposit in the cells of all tissues as well as for the building of muscle hemoglobin and blood hemoglobin.

The term anemia refers to a condition existing whenever the concentration of hemoglobin in the blood is reduced significantly below the normal or standard. The presence or absence of anemia is determined by examination of the blood but it can be strongly suspected by proper examination of the patient. Unless standards for the child's age are consulted, tests may be misleading. The newborn infant has a rather high concentration of hemoglobin (18-22 grams) which falls during the first days of life. The concentration then decreases slightly until 12 months of age (10-11 grams) then it gradually rises and at puberty it is increased to adult standards of 13-14 grams. Examination of the blood smear is the most important yet simplest of all laboratory procedures. Nutritional anemias by careful examination of the red cells can thus be classed as 1) iron deficiency or microcytic hypochromic anemia. 2) macrocytic or megaloblastic anemia due to a lack of the hematopoetic factors, vitamin B_{12} or folic acid, and 3) mild normocytic anemia of simple undernutrition or caloric deficit.

An adequate nutritional history is of primary importance to establish the diagnosis. It is often revealing to question the parent as to the type and amount of food taken over a 24-hour period. In the rural sections a history often reveals that the child remained on a bottle until two or three years of age. When this is true I have found that blood studies will substantiate a presumptive diagnosis of anemia. To facilitate early diagnosis of nutritional anemia blood studies should be made on any child still taking the bottle after one year of age. The appetite for nutritional foodstuffs is greatly diminished by the accessibility of even one bottle at bedtime. The history should also rule out any type of blood loss and laboratory examinations for the presence of pinworms, or other parasites. The presenting symptoms are most commonly anorexia, irritability, fatigue, weakness, and pica or abnormal appetite, many times revealed in the child eating dirt.

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*Presented at the Northeast Mississippi Medical Society, June 13, 1955, Tishomingo, Miss.

Physical examination will easily detect severe anemias by pallor of the skin and mucous membranes. A simple bedside test made by Silverman in 1954 showed 42 of 47 patients had hemoglobins below 7.0 grams if the palmar skin creases had lost their normal pink coloration in the outstretched palm. In longstanding cases definite retardation in skeletal and muscular development will be noted. An individual chart depicting weight and height curves will facilitate an early diagnosis. The heart rate is usually increased and cardiac murmurs are often present. The spleen and liver are often slightly enlarged. Edema may be present.

For the simple iron deficiency, microcytic hypochromic anemias, oral administration of iron leads to a satisfactory recovery. Within two weeks the appetite improves. This therapy should result in a hemoglobin rise of 1 per cent per day. The duration of treatment depending upon the severity of the anemias. Relatively large doses of iron are indicated in childhood. The ferrous form of iron is the most effective clinically. Infants 3-6 months of age should receive 5 mgs. of iron daily in divided dosage. This is increased to 100 mgs. daily in larger children. The response is more effective if given between meals in a non-phosphate containing diluent, since iron combines with phosphate decreasing the absorption of the mineral.

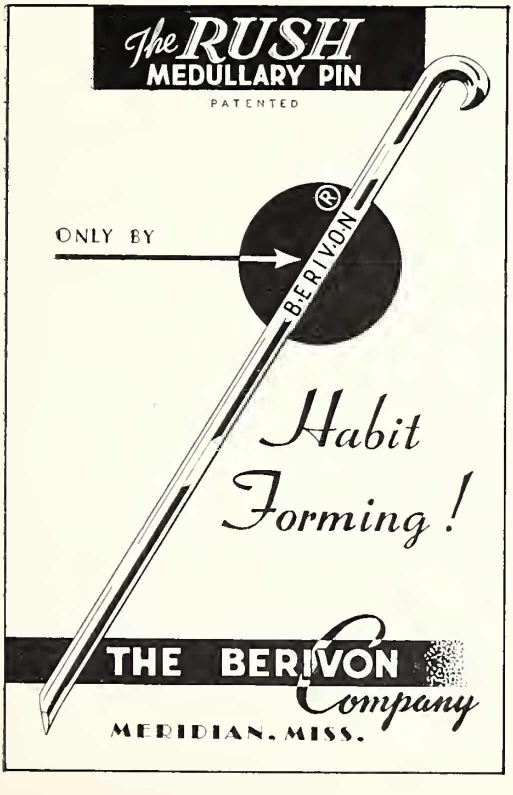
A transfusion is rarely indicated unless the anemia is combined with or due to an acute or chronic infection, in which case the administration of iron may be ineffectual.

Macrocytic anemias improve with 15 mgs. of folic acid daily, in addition to 200 mgs. of ascorbic acid. Ten to fifteen units of crude liver extract may be injected daily for one week.

Normocytic anemias will respond to a nutritious diet with foods rich in iron such as red meat, eggs, and liver. These foods should also be included with the therapy of all the nutritional anemias.

The oral administration of 25 micrograms of B_{12} daily will stimulate the appetite and show an accelerated growth curve with improvement in behavior and attitude of the patient.

The problem of nutritional anemia as reviewed today is intended to emphasize the value of a healthy curiosity as to the eating habits of our patients and stimulate more frequent blood examinations for the early diagnosis of anemia in childhood.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The Medical Profession and Vocational Rehabilitation

RUSH E. NETTERVILLE, M.D.
Jackson, Miss.

GUEST EDITORIAL

MEMBERS of the medical profession play an important role in the vocational rehabilitation of some of Mississippi's disabled men and women. This worthwhile program has two phases—physical restoration of the individual and/or training for the person to effect a satisfactory job adjustment. In our own field we are primarily interested in the physical restoration phase of vocational rehabilitation, but we need to consider also the follow-up in order to be sure that we have done all we can in an effort to help the handicapped man or woman who has had surgery or who has been able to return to work because of a planned medical care program.

As many physicians and hospital personnel are aware, the eligibility of a person for vocational rehabilitation services must begin with a general medical examination and report. This is necessary in order to establish the presence of a permanent disability and in order to let the vocational rehabilitation counselor know the capacities and limitations of the client, and to let the counselor know what medical procedures can be recommended for improvement or removal of the disability.

It is to be noted that although a person may be eligible for vocational rehabilitation services, some of these people do not receive them because there is no economic need. The financial picture of the client's family is considered in determining whether tax money can be spent in each case. An economic survey is made on each applicant to determine any income, the actual living expenses, value of real estate if any and the total ability of the client to meet his rehabilitation expenses. If a client is able to pay the expenses of the medical plan that is indicated, state rehabilitation services are not provided. Mississippi, like all the other 47 states and the District of Columbia, has a state plan approved by the Office of Vocational Rehabilitation. This entitles the disabled of our state to the benefit of about two U. S. dollars for every one state dollar that is appropriated. This represents a saving to Mississippi, in the long run, because we get back as much of the federal taxes paid as the state will appropriate money to match.

In 1954 Mississippi counted 876 men and women who returned to work or returned to full-time employment as a result of vocational rehabilitation services. The cost of case work services was $266,165, and the annual wage earnings of these rehabilitated persons totalled $938,080, exclusive of farmers, whom no actual earnings were determined. Rehabilitation does not cost, it pays.

Although the facilities in our state for the care of charity patients are always working to capacity, it is almost impossible to provide the necessary care for all who need it. There is a waiting list for admission to all our charity hospitals. Those who are unable to pay for medical care and treatment, but who could move to payrolls from assistance rolls are the persons who could come under the vocational rehabilitation program. Although rehabilitation funds are inadequate to *fully reimburse* physicians and hospitals for actual costs of services rendered, the fee schedule provides an allowable maximum that certainly gets the program out of an indigent care classification. The fee schedule has been worked out by members of the medical profession and representatives of the vocational rehabilitation division. The fees are below that usually charged private patients but are set at this level in order to care for the maximum number with the funds available.

We as medical men are in position to help those handicapped by disability not only from a humanitarian standpoint, but from an economic and social standpoint. The entire nation is trying to step up the number of cases that are rehabilitated every year until by 1959 the number of persons rehabilitated annually will be three times the number rehabilitated in 1954.

Only with the help and cooperation of the medical profession will Vocational Rehabilitation be successful in rehabilitating most of the 25,000 disabled that the state now has. Thousands of these people are on relief rolls. As physicians we can play a major role in rehabilitating these people so that they can again be taxpayers instead of tax consumers.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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REHABILITATION

We have the handicapped with us always, but we are just now realizing how to handle the problem. We not only have the physically handicapped but we have those with mental and spiritual difficulties as well. It is encouraging to know that 97 per cent of our physically handicapped can be rehabilitated to lead productive lives. We may expect the handicapped to increase rather than decrease.

We now know that the handicapped man when put back to work will do his job as well or a little better than the man who is not. He is safer as far as another accident is concerned. It is said on good authority that one dollar invested in rehabilitating the handicapped by the government will pay back one thousand per cent in taxes. So on this problem of rehabilitating and putting to work the handicapped, the doctor, the preacher, the teacher, the businessman and the lawmaker meet on a common ground of responsibility.

Our lawmakers have this problem before them now. The following facts should be brought to their attention. It does seem that our state should make the appropriations needed to meet all that might be available from federal funds.

Estimated disabled in Mississippi: 25,000.

Thousands can now be restored to remunerative employment who a few years ago were thought to be hopeless.

Thousands are now on public assistance rolls who could and should have been rehabilitated years ago, and a total cost to the state less than the burden of public assistance.

Over two and one half million dollars would be available for the disabled in Mississippi in the next biennium if the state would put up its part of $877,028.

THE MID-SOUTH

Let us meet in Memphis at the Mid-South Postgraduate Medical Assembly on February 14. A fine scientific program is waiting. This assembly is the first in the nation of just this type, where a review of the latest and the best in medicine is given in a four-day-and-night course of lectures by the top men in the nation.

It has a broadening influence in that every doctor may hear every address. It is housed under one roof, the Peabody Hotel, which is well arranged for such a meeting.

The fellowship at the Mid-South can not be surpassed. Memphis is a great medical center. It has the largest medical school in the nation and hospital accommodations are growing in numbers and in quality. With a steady and cooperative pull the South, especially the Mid-South, may become the medical mecca of the world. The climate is inviting, living expenses are reasonable and clinical material is plentiful. Postgraduate work in medicine is in demand locally and abroad. Doctors from other nations will soon be in evidence. Let us not miss the assembly meeting at any rate.

Dr. Joe Verser of Harrisburg, Arkansas, will preside over the meeting as president. He is able, courteous and cordial. The vice-presidents will do their part, to say nothing of the able work of Secretary Thurman Crawford, and Dr. Gilbert Levy who has done a monumental service as director of exhibits. On Wednesday night Dr. Verser will have the past-presidents for dinner. The annual banquet will be Thursday evening.

MSMA INTERIM MEETING

The third annual interim meeting of the Mississippi State Medical Association met at the Edwards Hotel in Jackson on January 26. It was well attended and presented a valuable program. There were no scientific papers read. The meeting was given to the discussion of important affairs related to the practice of medicine—socialism, medical education, discussion of local medical society problems, legislation, medicine, the people and the law, grievances, liability prevention, the medical witness—were the subjects discussed. The program was a most interesting one and very valuable for any man in the field of medicine. The meeting indicates that the medical profession is alert to its own affairs that extend beyond the line of scientific responsibility and that it is ready and willing to serve the people in any and all problems that relate to health. The gravity of the practice of medicine was pointed up as well as the opportunities for service ahead.

Governor J. P. Coleman was the luncheon speaker. His address was able as usual and full of inspiration.

It is quite certain this mid-winter meeting will grow and will serve a good purpose in our state association and in the field of medicine.

TODAY'S HEALTH

Today's Health, published by the American Medical Association, is one of the most valuable magazines we know for every home and every library. It is a good magazine for even the doctor to read and especially good to educate the laity. If the lay person reads this magazine he is better able to take care of himself and able to detect fakery, for which he pays dearly at times. Today's Health is a fine investment for every family.

FINANCING CARE OF INDIGENT

The Indigent Care Program for Mississippi is no doubt the best in the nation in many ways. It provides service to every county, to every community. This is as it should be. People have become more hospital-minded but prices have advanced in hospitals as well as in other lines. The amount allowed per day now is not enough. It should be increased so that the urgently sick patient can go at once to the hospital and have the doctor of his choice. The medical profession has been generous to donate its services. We hope our legislature will see fit to increase the amount per day to help take care of advanced prices and expenses. But hospitalization can hardly expect the expense of the charity case to be paid in full. If a county, state and nation donate a million dollars for hospitals it might well be expected that the interest on this investment should take care of some of the expenses of indigent patients. At any rate let us think and study together and do the best we can for the unfortunate indigent patient. Hospital insurance is serving well, but is not yet perfected to meet all needs. Could be, our people are not able to have all the medical service they need, or think they need. Let doctors, hospitals, and patients meet the problem of illness with cooperative understanding.

NEW PUBLIC HEALTH BUILDING

In the field of public health we have many Mississippians who have wrought well. Dr. W. S. Leathers laid a firm foundation and then Dr. Felix J. Underwood built well upon it. The late Dr. W. A. Evans gave impetus to the fine work by advice and inspiration, and as a friend and a helper with vision and practical application. Dr. Henry Boswell has been a power for controlling tuberculosis. Our mental institutions and mental health services have made great progress. We now have a four-year medical school that ranks in modern construction well with the best in the nation. It is located in a city that is growing at the cross roads of the Deep South. Medical service throughout the state is definitely on the upward trend. If and when our hospital system of community hospitals is completed their fine distribution will not be surpassed in this nation.

But one thing now we lack — a public health facility. For its construction the time is propitious. At this time it could serve as a monument of appreciation for progress in public health. It would be a fine tribute to Dr. Felix J. Underwood who has been the master general in the march of public health, and not only to Dr. Underwood but the entire medical profession, the members of the legislature across the years who have appropriated the means with which to carry on the work successfully. And we would even show gratitude or aid outside of our state. How we do need a home for our health department located on the Jackson campus of our four-year medical school. This facility would aid the health department in helping the medical school and the medical school in helping it. From the standpoint of economy they would be synergistic.

"State Legislation—1956"*

WILLIAM E. LOTTERHOS, M.D. †
Jackson, Miss.

For the thirty-third time since its present organization under the Constitution of 1890, the legislature of the state of Mississippi is in regular session. If history is any precedent about fourteen to sixteen hundred bills and resolutions will be introduced by your 49 senators and 149 representatives. Almost half of these measures and proposals will die on the calendar or in the committee.

This legislature has before it the difficult task of financing a program of government which is said to cost over $180 millions from a tax-take some $16 to $18 millions short of needed amounts. Generally speaking, we can look for little in the way of tax relief, and it's doubtful indeed if the so-called 14 per cent emergency surtax will be repealed.

Law enforcement mechanisms will be much a subject of consideration and we believe that a determined but futile effort will be exerted to repeal the hypocritical "black market" tax as well as the five per cent sales tax on the sale of illicit beverages.

As citizens, physicians are deeply interested in the work of our lawmakers. As physicians, we are interested in laws pertaining to the overall health of the citizens. We have pledged our support of certain legislative aims and my purpose is to outline for you briefly just where your Mississippi State Medical Association stands on state legislative issues.

Mississippi physicians possess a proud record of sponsoring and supporting good legislation. Essentially, we have been "for" rather than "against" legislation. The medical profession has figured prominently in the sponsorship and active support of most laws on the statute books which protect and promote the well-being of the public health and insure a climate in which the best possible medical care can be provided for all under a system of free choice. The year 1956 will be no exception to the record of service.

Your association is the active sponsor of an autopsy law which will have real meaning. For years, the present inadequate law governing autopsy has been the subject of study and debate. Our House of Delegates has considered time and time again this situation, and in May 1955, the eighty-seventh annual meeting did something about it.

The proposed law was drafted by a special committee of the Mississippi Association of Pathologists comprised of Drs. Robert Moore, Vicksburg; William V. Hare, University; and H. C. Ricks, Jackson. It was unanimously approved and endorsed by the House of Delegates.

This act gives a realistic definition to autopsy, outlines specific circumstances under which it may or shall be performed, and divests the physician of liability for real or assumed mental anguish or grief when performed under the provisions of the act. Your active support is earnestly solicited.

In cooperation with the Mississippi Hospital Association, we are supporting an improved indigent care law. This was a recommendation of our Committee on Medical Service following a year-long study, and the recommendation was approved by the House of Delegates. The essential difference in the proposed law and the present statute is in money: A request for $1.5 millions instead of $1,375,000 is before the regular session. This, in itself, does not appear significant but administrative actions proposed by the State Hospital Commission under this revision will do much to provide a more realistic reimbursement for our hospitals in the care of the indigent.

Your Committee on Legislation fears that portions of our indigent care program will not be realized in this session. By this, I mean reimbursement of private hospitals for charity care in counties with charity hospitals. We believe also that there is little possibility at this time of maintaining the four remaining charity hospitals on a county-community support basis with regular *per diem* aid from the State Hospital Commission, but we hold steadfastly to our position adopted by the House of Delegates that we must continue to press for this goal.

Two bills are proposed by the American Cancer Society, Mississippi Division, which relate closely to the indigent care law. One bill is really an amendment to Senate Bill 256 under which the cancer program now operates. It would 1) amend the provision requiring approval of the hospital in which care is rendered by the American Cancer Society and make it instead approval by the American College of Surgeons; 2) eliminate the necessity of having the local health officer approve the application of a patient for care under the program and instead make it " . . . two reputable physicians;" and 3) change the permissive clause allowing an increase in *per diem* reimbursement by the State Hospital Commission from "may be increased" to "shall be increased."

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†Presented before the Third Annual Interim Meeting of the Mississippi State Medical Association, Jackson, January 26, 1956.

†Read by A. Street, M.D., Vicksburg Chairman, Committee on Legislation, MSMA.

†Member Committee on Legislation, MSMA.

Your Council, acting last evening on a special report of our Committee on Cancer Control which has studied this bill extensively, approved the recommendations of this committee and supports the first two amendments while opposing the third.

The second bill would largely concern the allocation of indigent care funds, earmarking a portion of these funds for cancer patients on a percentage basis and establish a state cancer commission with a paid executive and staff. The position of the association is that there is little equity in having a state agency devoted to the care of one disease only. Rather, your association feels that all indigent care should be equally administered on the basis of demonstrated need. Accordingly, we oppose the second bill in its entirety. We believe that we physicians have clearly defined responsibilities in these areas, for we are actually rendering the care with neither compensation nor thought of compensation. This program of service—annually aggregating a monetary value of hundreds of thousands of dollars to the state and the people—is simply a part of medicine's service and dedication. We must, however, insist on reasonable administration of the total program and insure maximum protection of our non-profit hospitals and the general well-being of the public by avoiding a unilateral approach to the needs of the indigent.

Let's talk for a moment about the really hot issue of cultism. It is in this area that we wage a holy war to protect a sleepy and sometimes apathetic public from the scourge of licensed cultism—meaning specifically chiropractic, naturopathy, and other forms of irregular practice which, by definition, have no demonstrable scientific basis for being valid systems of healing.

Mississippi is one of four states which do not license chiropractors. Let's still be one of the four when this session adjourns.

We've learned a lot about fighting cultists over the years. We have to be vigilant and careful of their smooth and subtle approach toward their avowed goals. Watch out for such phony, do-good bills as " . . . acts to regulate" and boards to control. Any sensible person knows who would do the regulating and what would be regulated. Licensure can't make a bad thing good, and we are better serving the people by having no licensure or regulation at all as is the present status.

Even some physicians can't seem to understand that you just can't purge the state of cultists by law; there must be a violation of the Medical Practice Act. But to enact any form of regulation would be to open the door to successive and progressive legislative demands and to underwrite future legislative successes for the cultists. The pattern in other states has been the same: At first, they ask little and initial enactments actually appear to regulate their activities rigorously. But, little by little, they come back, confuse the issue, ask and get more and more.

Your association is firmly on record opposing any legislation whatsoever to confer any sort of legal sanction on cultism. By withholding the stamp of legality and licensure, you insure the best regulation. This can only be achieved by continuous and concerted action at the local level with you, the respected doctor in your community, keeping the issue constantly before your senator and representative as well as your friends in the community. If you are called on, give generously of your time and influence and go all-out to support a system of public health and medical practice free from cultism.

During one of the three special sessions since 1954 regular session, we of medicine were successful in opposing a three per cent tax on professional services. In the frantic search for additional tax funds for the school equalization program, this was the only revenue measure which failed. We will again insist that a tax on sickness and distress is unfair should this come before the 1956 Legislature.

Mississippi has done a splendid service to its citizens in the hospital construction program. Back in 1948, a $10 million fund was provided the Commission on Hospital Care for state matching of Hill-Burton money. We are proud of our community hospital system which in a little over eight years has produced 77 projects completed costing a total of $31.9 millions of which $17 million was Hill-Burton money. A total of 2,714 beds have been constructed in the state under this program.

Eleven projects are currently under construction which will supply 366 beds at a total cost of $5.2 millions of which $2.3 millions will be federal money. Six projects to supply another 227 beds are approved but not yet under construction involving a total of more than $3 millions. This is medical progress.

Since 1948, no really "new" money has been given this program by the legislature; rather, there have been periodic reappropriations of funds reclaimed to the state treasury at the ends of bienniums as required by law. The Commission on Hospital Care has suffered losses just under one million dollars of funds reclaimed for budget-balancing and so-called lapsed funds. We suggest that these are matters for the most serious consideration if state aid is to continue until termination of the program. MSMA has no fixed legislative position on hospital construction financing at this stage of the program, but the assumption of such a position may become necessary.

Your association has received cordial reception from the administration during the past eight years. Governor White dealt with us courteously and warmly listened to our various positions and requests. It was through his action that the naturopaths were not licensed by corporate fiat. He has been gracious to medicine and he has supported constructive moves in the fields of health.

1956 will be a big year for medicine from a legislative viewpoint. Every member of the association has a stake in the issues before the people. When you are called upon, respond as you do in a medical emergency—a sick law deserves your professional attention second only to a sick human being.

NAMED TO BOARD

Dr. G. E. Bittenbender, professor and chairman of anesthesiology at the University of Mississippi School of Medicine, and director of anesthesiology for the University hospital, has been named to the board of governors of the American College of Anesthesiologists.

VOCATIONAL REHABILITATION BUDGET ANNOUNCED

Travis McCharen, Director, Division of Vocational Rehabilitation has requested a budget of $877,028 to match federal funds during the 1956-58 biennium. Matching federal funds would bring the total funds available to $2,609,555 for the disabled in Mississippi. Mr. McCharen says there are 25,000 disabled persons in the state. Last year the state rehabilitated 876 persons. He anticipates 2,000 requests for rehabilitation next year.

News and Comment

PRESIDENT

Dr. Verser

FROM THE PRESIDENT

I would like to take this opportunity to extend to you and your wives a special invitation to attend the sixty-seventh annual session of the Mid-South Postgraduate Medical Assembly, February 14, 15, 16, 17, Hotel Peabody, Memphis.

The Program Committee has arranged one of the best programs ever, one that should be of special interest to the general practitioner. Attendance at this meeting can be used as formal credit toward the requirements of the American Medical Academy of General Practice.

In addition to the fine program, wonderful entertainment for the doctors and their wives will be provided, so plan now to attend.

Looking forward to seeing all of you at this meeting and wishing for you the best in 1956.

Sincerely,
Joe Verser, M. D., President

MSMS STARTS NEW OFFICE BUILDING

Construction is well underway on the new headquarters building of the Mississippi State Medical Association. The building is located on

Riverside Drive, Jackson, adjacent to the University Medical Center. Being built at a cost of $68,000, the headquarters will be completed in March and dedicated in May, the association's 100th anniversary.

NOTICE OF 'V' CONGRESS OF PAN AMERICAN MEDICAL WOMEN'S ALLIANCE

The 'V' Congress of the Pan-American Medical Women's Alliance will be held in Santiago and *Vina del Mar*, Chile, March 6 to 13, 1956. A pre- and post-Congress trip is planned to include visits to hospitals and medical clinics in Mexico, San Salvador, Panama, and Peru. A week's trip pre-Congress is planned in the lake region of southern Chile under the guidance of some of the Chilean women doctors. Following the Congress a week will be spent in La Paz, Bolivia, visiting their medical projects among the Incas. En route to Lima there will be a day trip across Lake Titacaca and ample opportunity to explore the archealogic treasures of Cuzco and Macchu Picchu. Arrangements may be made to shorten or lengthen the planned itinerary.

Information may be obtained from the Secretary, Dr. Eva F. Dodge, 2124 West 11th Street, Little Rock, Arkansas, or from the Program Chairman, Dr. Eva Cutright, Wooster, Ohio.

AMERICAN INSTITUTE OF DENTAL MEDICINE CASE HISTORY SERVICE

The Institute continues to offer case histories from the broad field of dental medicine for the year 1955-56. These will include original 35 mm. kodachrome slides of the oral condition, pertinent laboratory findings, medical background, roentgenograms, histologic slides, photomicrographs, diagnostic criteria and whatever else may be indicated in each individual case. A loose leaf binder and matching kodachrome slide box will be furnished each participant. The fiscal year of the Institute begins October 1.

For further information address all communications to the Secretary, Mrs. C. Novembri, 2240 Channingway, Berkeley 4, California.

AMERICAN GOITER ASSOCIATION

The 1956 meeting of the American Goiter Association will be held in the Drake Hotel, Chicago, Illinois, May 3, 4 and 5, 1956.

The program for the three-day meeting will consist of papers and discussions dealing with the physiology and diseases of the thyroid gland.

AMERICAN ASSOCIATION OF BB

The site of the ninth annual meeting of the American Association of Blood Banks previously scheduled for Cincinnati, Ohio, November 4-7, 1956, has been changed. The meeting will be held September 3, 4, 5, 1956, at the Somerset Hotel in Boston, Massachusetts. Inquiries should be directed to Miss Marjorie Saunders, Secretary, 725 Doctors Building, 3707 Gaston Avenue, Dallas, Texas.

AMERICAN ACADEMY OF OB AND GYN

The fourth annual interim meeting of District VII of the American Academy of Obstetrics and Gynecology will be held at the Peabody Hotel, Memphis, Tennessee, March 9-10, 1956.

A two-day program has been planned, consisting of 11 scientific papers by Fellows, 6 unusual case reports, 9 short papers by Residents and 16 Luncheon Round Tables.

The Academy Banquet with entertainment to follow will be held on Friday evening, March 9. Wives are invited.

Doctor William T. Black, Jr., is chairman of the local arrangements committee.

OPEN NEW HEALTH DEPARTMENT

The Union County Health Department had the formal opening of its new building Monday afternoon, the sixth of February, New Albany, Miss.

1956 TULANE CONFERENCE

This is the "Alert" for the 1956 Tulane-Jackson Conference.

THE DATE: Saturday, February 18, 1956.

THE PLACE: The Hotel Edwards.

THE PROGRAM: Interesting educational and cultural topics presented by outstanding Tulane faculty members.

THE JACKSON-TULANE CONFERENCE CHAIRMAN: Dr. Charles N. Wright, 3061 W. Capitol St.

PLEASE MARK YOUR CALENDAR AND SPREAD THE WORD TO OTHERS.

SITUATION WANTED October 1956 to July 1957—between service discharge and residency. Age 31. Associate in private practice or institutional employment desired. Two years' general practice. Two years Air Force. Write care of the *Mississippi Doctor.* J-3t

Book Reviews

Surgical Physiology of the Adrenal Cortex—by James D. Hardy, M.D., F.A.C.S., Professor and Chairman Department of Surgery, University of Mississippi, Surgeon-in-Chief, Hospital of the University of Mississippi, Jackson, Mississippi. Published by Charles C. Thomas, Springfield, Illinois. 208 pages, 14 illustrations. Price, $5.75.

When we know and understand the extent of glandular function, we shall have the key to cancer control; indeed, when endocrinology yields all of its secrets, we shall know life! And although the advances are so considerable that most of us are able to follow as yet only afar off, we hail the intrepid courage of pioneers in this field.

Surgical Physiology of the Adrenal Cortex is written primarily for surgeons, giving a clear perception of the function of the adrenal cortex in present day surgical practice. Careful emphasis is given to the body physiology upon which the adrenal cortex has influence, with a succinct presentation of actual operative and laboratory data. Physiologic reaction to multiple staged operations, the adrenocortical response to thermal burns, adrenocortical hyperactivity and adrenalectomy for essential hypertension and malignant neoplasms bring into this one volume practical useful laboratory data which summarize the adrenocortical functions, plus the clinical management of adrenocortical tumors and hyperplasia. The author clearly defines the therapeutic uses of ACTH and cortisone, with clinical indications and contraindications.

We believe Dr. Hardy's work will be extremely valuable to the physiologic surgeon and the surgical physiologist.

The Interpretation of the Unipolar Electrocardiogram, by Gordon B. Myers, M. D., Professor of Medicine, Wayne University College of Medicine, City of Detroiti Receiving Hospital. Published by the C. V. Mosby Company, St. Louis, Mo., 1956. 165 pp. Price $4.75.

"The electrocardiogram should be employed as an adjunct in the final diagnosis, and never as a substitute for clinical findings; it should always be interpreted in the light of all clinical data and never in the absence of other information. Under these circumstances, electrocardiographic interpretation achieves its proper role in clinical medicine," states the author in the preface to this volume: He has endeavored to prepare an interpretative, organized manual as an entity.

The analysis of the arrythmias is made from leads that clearly display auricular as well as ventricular deflections; the interpretation of the QRS-T complex is based upon the findings in multiple precordial and back leads: All concepts are presented in detail and suitably illustrated with postmortem findings:

FOR SALE! NEW EDITION OF SOS

In May, 1915, Dr. Rudolph Matas, of New Orleans, dean of the surgical world, delivered an oration which has been published in two former editions — an immortal little treatise which has become a medical classic treasured as a personal memoir by scores of his friends and former students. Its rich wisdom will also continue to be sought by young students of medicine for light and inspiration.

The Soul of the Surgeon is out in a third edition, beautifully bound in maroon leatherette and gold-stamped for permanency. Price, $1.75. Order from the *Mississippi Doctor*, Booneville Mississippi:

Woman's Auxiliary

AMA AUXILIARY

The thirty-third annual convention of the Woman's Auxiliary to the American Medical Association will be held in Chicago, June 11 to 15, 1956, with headquarters at the Conrad Hilton Hotel.

For hotel reservations, write to the reservation manager of the Conrad Hilton. A block of rooms has been set aside for the Woman's Auxiliary, but reservations will NOT be accepted after April 15, 1956.

Mrs. Mason Lawson of Little Rock, Ark., national president, extends a most cordial invitation to attend and to take part in the activities of the meeting. We are particularly urged to attend the round-table discussions, where Auxiliary chairmen and guest speakers will discuss timely Auxiliary topics.

DOCTOR'S DAY

March 30, 1956, is only weeks off and NOW IS THE TIME to complete your plans for observance of Doctor's Day!!

Awards will be given at the 1956 convention of the Woman's Auxiliary to the Southern Medical Association for the most original, outstanding and unique observance of Doctor's Day: Make those plans now! Full details of awards will be published in the forthcoming issue:

DEATHS

DR. J. W. LUCAS

Dr. James Walter Lucas, 84, prominent physician and surgeon of Moorhead, died unexpectedly in Jackson, December 30, while visiting his son, James W. Lucas, Jr. He was stricken while eating lunch and was rushed to the Baptist Hospital where he was pronounced dead on arrival. He had been in Jackson for only one day.

Dr. Lucas, retired surgeon for the Illinois Central Railroad after 50 years' service, was a native of French Camp and had lived in Moorhead since 1898. He was a member of the Mississippi Medical Association and served as district counselor for twenty years. He had been a member of the Fifty-Year Club since 1948.

His survivors include his widow, the former Miss Lula Draper Fair of French Camp; three sons, Dr. John F. Lucas, of Greenwood, James W. Lucas, Jr., of Jackson and Capt. Davis Lucas, U. S. Navy; one daughter, Mrs. B. A. Holiday, Jr., of Louise; ten grandchildren and two great-grandchildren.

DR. C. R. DODDS

Services for Dr. Charles Richey Dodds, Starkville physician, were held January 19.

Dr. Dodds died at the Felix Long Memorial Hospital in Starkville, after a month's illness. He was 79, and had been practicing medicine for the last 50 years. He was recently elected an honorary member of the American Medical Association.

He was born in Crider, Ky. He attended Kentucky A. and M., now the University of Kentucky at Lexington. After teaching several years he entered the Medical College of the University of Nashville, and received his medical degree there in 1906.

That same year he began the practice of medicine in Bradley, in Oktibbeha County. Soon he moved to nearby Sturgis, where he built up a successful practice.

In 1914 he moved to Starkville, where he practiced medicine until his recent illness.

He has served as an officer of the First Presbyterian Church of Starkville many years, and at the time of his death he was an elder of the church. For many years he was a member of the Starkville School Board.

In 1906 he married Miss Cora Frances Floyd of Lockburg, Ark. She died in 1950. He leaves two daughters, Mrs. Mary Cauthen of Brookhaven, Miss., and Mrs. R. C. Wees, Jr., of State College; four sons, James Dodds of Boise, Idaho, Charles Dodds of Jackson, Miss., Dr. Floyd Dodds of Brantley, Ala., and Prof. Alvin Dodds of Charleston, S. C.; nine grandchildren; two sisters, Mrs. Claude Wilson of Princeton. Ky., and Mrs. Ethel Greadwell of Starkville; two brothers, Tom E. Dodds of Highland, Ill., and Finis Dodds of Frankfort Heights, Ill.

DR. THOMAS V. HORN

Dr. Thomas V. Horn, 71, of Edinburg died January 24 after several years of ill health. He was born in Attala County in 1884 and would have been 72 on February 2.

Dr. Horn, a well-known and widely respected physician, practiced for 45 years in Edinburg, Leake County, and made his home there until entering the hospital early this year. He was a graduate of Memphis Medical College, Class of 1912.

Survivors include his widow, Mrs. Belle Winters Horn; two daughters, Mrs. Mary Ruth Richardson of 1300 Oliver Drive, Pascagoula, and Mrs. Alleene Smith of Edinburg; one granddaughter; Laura Richardson of Pascagoula; three grandsons, Thomas Wade and Fred Vowell of Edinburg; three sisters, Mrs. Maggie Dodds of Edinburg, Mrs. Nora Mae Jarvis of Sweetwater, Texas, and Mrs. Neva Roberts of Beaumont, Calif; one brother, Harmon Horn of Beaumont, Calif.; and several nieces and nephews.

DR. A. I. BOOZER

Dr. Albert Isaiah Boozer, Amory physician for half a century, died on January 8 at the Gilmore Sanitarium where he had been very ill for more than a week. He had been in failing health for about two years but was active in his practice until forced to take medical treatment.

He was 82 years of age and on his 80th birthday delivered a fine baby boy for one of his many patients. When called upon by a News-Advertiser reporter and asked to pose for a picture he couldn't understand why he was "news."

The reporter reminded Dr. Boozer that he was 80 years old that day and the doctor said that it wasn't anything unusual for a man to reach that age. He was then asked if it wasn't a little bit unusual for a man of his years, even if he was a good doctor, to successfully handle a labor case. However, the good doctor didn't let the reporter win the argument because he said, "Well, you can make my picture, but I'd lots rather you'd go out to my farm and make some pictures of my fine cows." That little incident was typical of Dr. Boozer because his thoughts were always of others and not of himself. For that reason and many other fine traits he was beloved by everyone.

Dr. Boozer was born in Itawamba County and was graduated from the University of Tennessee Medical School in 1903. He began his practice in Monroe County and 36 years ago became associated with Dr. M. Q. Ewing to form the Ewing-Boozer Clinic in Amory.

He was a past president of the Monroe Medical Association, and was a member of the Board of Stewards of the First Methodist Church and the Amory Kiwanis Club. His interests in his friends and community was always great.

During his later years he operated a large farm near Wren in which he took a great deal of pride.

Dr. Boozer leaves his wife, Mrs. Mattie Boozer; two daughters, Mrs. Weston McKinney and Mrs. Frank Woolf, both of Amory; three sisters, Mrs. Louella Rutledge, Fulton; and Mrs. Gordon Schumpert and Miss Gertrude Boozer, both of Carolina community; four grand children and one great grandchild.

All Monroe County doctors and the Board of Stewards of the Methodist church served as pallbearers.

Alonso of Aragon was wont to say in commendation of age, that age appears to be best in four things—old wood best to burn, old wine to drink, old friends to trust, and old authors to read. —BACON.

Hypertension in Everyday Practice*

ARTHUR GROLLMAN, Ph.D., M.D., F.A.C.P.†
Dallas, Texas

An elevated blood pressure constitutes probably the commonest disorder encountered by the physician in his everyday practice. Over half of the patients who are beyond the age of 50 have an abnormal elevation involving at least the systolic pressure. This has led to the suggestion that such deviations should not be considered abnormal and that we alter our concepts of what constitutes a normal blood pressure. However, such a viewpoint is misleading since the elevated pressure does reflect an underlying pathological condition despite its common occurrence.

EVALUATION OF THE PATIENT

Before embarking on a course of treatment in a patient with hypertension it is essential that the physician evaluate the nature of the underlying condition responsible for the observed elevation in blood pressure. In many cases over-emphasis on the blood pressure may instill in the patient anxieties that far exceed in their untoward effects such benefits as might be derived by the available therapeutic measures. The use of drastic or potentially harmful measures is unjustified in patients with mild or benign forms of the disorder.

It is of utmost importance for the practicing physician to evaluate the significance of the blood pressure readings which he obtains rather than simply to conclude that a given elevation in blood pressure represents hypertension. Thus, a rise in the systolic blood pressure is most often a secondary effect of the loss of elasticity of the blood vessels resulting from atherosclerosis and such patients are not to be treated as are those suffering from hypertensive disease. It is also important to evaluate the severity of the disease by a general survey of the patient rather than to rely simply on the blood pressure as obtained on a single or even on frequently repeated determinations. Not infrequently the level of the blood pressure may not reflect the severity of the disease, particularly in patients who, because of a nervous temperament, may exhibit a lability of blood pressure and elevations in its level which is out of proportion to the actual severity of the underlying disease.

It is essential that the general survey include at least an evaluation of the size and condition of the heart, an ophthalmoscopic examination and a study of the renal function. Essential hypertension is an hereditary disorder and hence a history of its familial occurrence is important. The duration of the disease and the presence of other underlying disorders are important in order to rule out such conditions as infarction of the kidney, thrombosis of the renal vessel or other rare disorders such as pheochromocytoma which give rise to paroxysmal or chronically elevated hypertension. These must be recognized for although rare, nevertheless, these or the presence of an atrophic kidney or constriction of the renal artery, constitute the few, at times, surgically remediable forms of hypertensive disease. Hyperthyroidism, particularly toxic adenoma of the thyroid, with its increased cardiac output may often also result in an elevation in systolic pressure which may be mistaken for early hypertensive disease.

MANAGEMENT

Having excluded the very rare surgically remediable causes of hypertension, management will depend upon the severity of the disorder and the complications present in a given patient. Although we have advanced greatly in our understanding of the pathogenesis of hypertension, our methods of management leave much to be desired. None of them may be considered as truly rational in the sense that they overcome the basic defect responsible for the disorder in a given patient. Consequently it is unwise to subject a patient who is suffering perhaps from a labile and mild hypertension without evidence of significant organic changes in the heart, eyegrounds, or kidney, to onerous restrictive diets, surgery, or the risk involved in reducing his blood pressure by the use of potentially dangerous drugs. In such cases of mild hypertension, symptomatic relief if necessary is obtainable by simple reassurance and other relatively simple measures.

In the moderately advanced hypertensive patient with a fixed elevation in blood pressure and evidence of secondary changes in the cardiovascular system, more intensive measures are indicated if one is to mitigate the ultimate ravages of the disease. In such patients, dietary, surgical and drug therapy are available. Many factors, however, must be considered before embarking on any plan of treatment and no simple procedure can be outlined suitable for the management of all hypertensive patients.

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*Read before the Mid-South Postgraduate Medical Assembly at Memphis, Tenn., February 14, 1956.

†From the Department of Experimental Medicine, University of Texas Southwestern Medical School.

In the case of the accelerated or malignant phase of hypertension the use of hypotensive drugs has proved of greatest value and constitutes a real advance in therapy. In many cases which previously proved almost universally fatal the use of these agents may cause the disease to revert to the chronic stage of the disease. In the case of the chronic benign stage of the disease, on the other hand, it is questionable whether the inherent dangers and difficulty in properly adjusting the dose to provide an appreciable drop in blood pressure is worthwhile. It must be remembered that essential hypertension may not infrequently follow a non-progressive benign course which in the absence of cardiac, retinal or renal damage may be compatible with a normal life expectancy in individuals over age 50 and in some under this age. Because of the danger of inducing anxiety concerning their high blood pressure attention should in such patients be not directed to it and use of potent drugs or other drastic measures avoided. If early malignant hypertension is suspected, careful observation is desirable to distinguish it from the benign condition and adequate therapy instituted when indicated.

DIET

Of the procedures used in the management of hypertensive disease, dietary restriction of the sodium intake constitutes the least drastic and least potentially harmful available procedure. However, it too in patients with complications resulting in sodium loss as, for example, certain renal disturbances, may result in untoward effects. The dietary management of hypertension is based on the effectiveness of sodium restriction in lowering the blood pressure. To apply this method effectively both the physician and the patient must be acquainted with the sodium content of foods, and the physician must ensure that the patient is actually restricting his sodium intake. Unless this be done the method is certain to fail. The rice diet, introduced by Kempner, owes its efficacy to its low sodium content but may have certain practical advantages in hospitalized patients. Resins are unsatisfactory because of the electrolyte and acid-base imbalance resulting from their use unless accompanied by the administration of potassium salts between meals. Their occasional use for the patient when he is obtaining meals outside of his own home may be desirable.

SURGERY

The recent enthusiasm for drug therapy has detracted from the former popularity of sympathectomy in the management of hypertension. Sympathectomy appears to have slowed the progression of the accelerated phase of hypertension and prolonged life in certain patients. Adrenalectomy is still in an experimental stage of development and not established as a form of therapy for hypertension.

DRUGS

Despite the enthusiastic reports and claims for the value of hypotensive drugs in the treatment of hypertension, there is disagreement as to the merits and effectiveness of these agents. Enthusiasm rather than careful observation, may be responsible for the more extravagant reports. The effects of reassurance and suggestion on so labile a function as the blood pressure must always be considered in evaluating a given treatment. There is no question that numerous agents are capable, when used in sufficiently large doses, of lowering the blood pressure in the normal as well as in the hypertensive person. However, it is often difficult to obtain definite lowering of the blood pressure without undue side effects. Adequate therapy may be accompanied with each of the available drugs by untoward and often serious side effects.

The principal drugs in present use include the ganglionic blocking agents (hexamethonium and pentolinium salts), hydralazine, various preparations of the Veratrum alkaloids, extracts and purified principles of Rauwolfia serpentina and combinations of these drugs. The most satisfactory response has been in the young and middle-aged patients with hypertension complicated by left heart failure, retinitis, and transient encephalopathic attacks and in malignant and premalignant stages of the disease. In such patients, the prognosis is poor, and any regimen, despite the demand made on the patient as well as on the physician justifies their use. This is quite different than in the young and middle-aged benign hypertensive patient with uncomplicated disease. There is as yet no evidence that encephalopathic attacks or anatomic changes in the vessel walls which ultimately result in such complications as thrombosis, cerebral hemorrhage, or dissecting aneurysm are ameliorated by drug therapy or that such effecas as cerebral softening, mental deterioration, renal damage, or other complications of hypertension and arteriosclerosis are prevented.

It is in the malignant (accelerated) phase of hypertension that drug therapy, as already indicated, has proved of undisputed value in causing a reversion of the disease to its more benign phase. Reversal of the changes in the eyegrounds, decrease in cardiac size, amelioration of symptoms, and prolongation of life attest to the benefits of therapy in this stage of the disease. Comparable results have been reported following drastic sodium restriction with the rice diet and following sympathectomy but the drugs by their prompter action are superior in this respect than these procedures. In using the drugs in malignant hypertension caution must be taken against the worsening of cardiac, renal or cerebral function as a result of lowering the blood pressure.

CONCLUSION

The diversity of the measures advocated by competent observers for the treatment of hypertension reflects the inadequacy of presently available methods. No available procedure is specific in the sense that it counteracts the basic defect responsible for the disease. Until further research makes a truly specific and rational therapeusis available, our treatment of this common disorder must remain unsatisfactory.

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The Treatment of Pilonidal Cyst and Sinus

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PILONIDAL cyst and sinus can be cured by careful preoperative preparation, meticulous operative technic, and detailed preoperative care. A pilonidal cyst is an epithelial-lined lesion in a moist region that is frequently traumatized by sitting, especially in rough riding vehicles, and it is subject to fecal contamination due to its proximity to the anus. The symptoms of the cyst are brought on by infection and abscess formation with further sinus and scar formation.

Methods that have been used for the cure of pilonidal cyst and sinus are marsupialization, excision by cautery or cold knife and packing to allow the wound to granulate in, and excision and primary suture.

I shall describe a method of management that has been highly successful. To cure a cyst, infection should be brought under control, all epithelial elements and as much scar tissue as possible excised, the wound closed with a minimum of tension and foreign matter such as blood clots and large sutures, the obliteration of all dead spaces, and accurate approximation of skin edges. Infection from fecal contamination must be avoided. The wound should be kept dry to avoid maceration.

An infected cyst is first treated with local compresses and applications, sitz baths, antibiotics, scrupulous local hygiene, and if necessary incision and drainage. It is not always necessary to incise a pilonidal abscess. Much time can be saved by aspiration of the pus and injection of a penicillin solution. After the infection is under control, the patient is started on antibiotics and given castor oil, enemas until clear, and milk-free liquid diet. These measures are to clean out the intestinal tract and keep the patient from having a bowel movement during the definitive phase of the treatment. Paregoric or laudanum can be given if the patient has an inclination to have a bowel movement before the wound is healed. Under the above régime a man with severely burned buttocks went over three weeks without a bowel movement, so that without a colostomy there was a primary take of large skin grafts on both buttocks. He had no discomfort. He did not develop weakness. He did not apparently lose any weight. Any solid food, even a candy bar, might cause a stool. Of course, milk is not allowed.

For the operation, the patient is placed on his face after a spinal anesthetic is given. The region is washed with soap and water, shaved, and treated with ether and antiseptics. It is better to shave the patient at the time of surgery as furuncles sometimes occur if the patient is shaved 24 hours before surgery. A curved or hockey stick type incision is made, starting well to the right or left of the midline and well cephaled to the cyst. It is carried down to the fascia covering the gluteal muscles and the sacrum and is extended medially around the cyst and sinus bearing tissue caudally past the tip of the coccyx, as some cysts are attached to the top of the coccyx. Thus, we have a hockey stick shaped incision with the tip of the handle of the hockey stick being close to the anus. All cysts and sinuses are removed and as much scar tissue as possible. At times it is necessary to make one or more lateral extensions to the incision to include sinus tracts. The convex side of the incision is now undercut on the fascia covering the sacrum and the gluteus muscle. It is undercut far enough to allow wound approximation without tension. The object of the curve on the incision is to enable the surgeon to undercut further by having a flap that he can raise up. There is a line of vessels at the sacral edge that run from the muscle through the deep fascia to the subcutaneous fat and penetrate the deep fascia at right angles. These act as pegs that keep the flap immobile, but when these vessels are cut, they allow much mobility to the flap. Only one flap is undercut as the sacrum forms a valley between the hills of the buttocks, and undercutting each side causes dead space from the tendency of the flap to tent over the valley. With just one side being undercut, the flap is sutured down into the valley onto the presacral fascia. All bleeders, no matter how small, are tied with the finest cotton (No. 60to No.90) or fine chromic catgut (000 or 0000). The wound is thoroughly irrigated with saline and sutured with one or two buried layers of interrupted sutures of material similar to that used for ligatures The skin is accurately approximated with interrupted cotton sutures. Sulfanilamide crystals are poured on the suture line for their drying effect and a well-padded dressing applied so that the adhesive tape pulls the buttocks together in the midline further to keep tension off the suture line

After surgery, milk-free liquids and antibiotics are resumed, and the patient nursed on his abdomen. The wound is inspected after a few days for complications. Any hematoma or serum is aspirated from under the flap, and a new coating of sulfanilamide crystals and a new dressing applied. On the seventh day, some or all of the sutures are removed, and by the tenth day, any remaining sutures. If the wound is healed, the patient is allowed to eat. He gets up on the fourteenth day. This technic was worked out during war days on soldiers when penicillin was very scarce so that sulfadiazine was used as the drug taken by mouth. Now with penicillin and the mycins it might be possible to get the patient out of bed much earlier. Before the method was worked out, any soldier with the least complicated pilonidal cyst or sinus was in a bad way. Results were very poor. Results using the above method have been almost 100 per cent good even on badly scarred cysts with multiple sinuses and even recurrent cysts, so that we feel the time and effort spent in its consummation are more than worth while. Many people might think that the flap looks unduly radical, but it certainly turns out well. It is a lot of work to stop all the blood vessels from bleeding, but the results justify it.

MY GARDEN

A garden is a lovesome thing, Got wot!
    Rose plot,
  Fringed pool,
Fern'd grot—
    The veriest school
    Of peace; and yet the fool
Contends that God is not—
Not God! in gardens! when the eve is cool!
    Nay, but I have a sign;
    'Tis very sure God walks in mine.

—Thomas E. Brown

The Relation of Longevity to Neoplasia*

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SINCE THE beginning of time, philosophers have reflected upon the problems of the aged and the aging. In 1683, Roger Bacon wrestled with the problem, writing a treatise on the cure of old age and the preservation of youth[1]. Centuries before his period, however, men of learning attempted to explain the mysteries of advancing years and to find some way to arrest the changes that they brought[2].

In these days of drives of major proportions to eliminate disease, we hear much of mounting rates of death, due to the virtual elimination of fatal infectious illness. So much is said, indeed, that the import of the facts becomes blunted, and only frequent reference can keep the serious trend in its true proportions. It is hard to realize that cancer, 20 years ago, was only number 8 in the causes of death, and is now second, and first in some age groups[3]. A doubling mortality in two decades poses a serious problem to the worker in public health. It is interesting, furthermore, to observe a crossing of the curves for cancer mortality by sex. At one time viewed, though improperly, as a female disease it is now more of a threat to men.

The extent of the problem is even more perceptible when prevalence and incidence are tabulated as well as mortality[4]. The number of individuals with cancer living at any specific time is almost exactly double the rate of death, and incidence falls between the two figures. At any moment, three in every 100 of the population aged 80 has cancer and presumably requires some degree of care. When to this figure is added those in other age groups, the total reaches a very substantial figure.

The explanation of the rising death rate from cancer is to be found, as is generally recognized, in the fact that our population is steadily growing older. About 1,000,000 more individuals each year are added to those in the cancer age of over 40[5].

The same conclusion is supported by the figures from New York City. Of the 16,500 annual cancer deaths, by far the greatest number occur in persons between 50 and 70 years of age[6]. It is interesting to note that one special cancer institution in New York (the Memorial Center) comprising a voluntary and a municipal hospital admits annually about one-half of this figure.

Most striking in the figures for cancer mortality are the ones showing the change for the sexes[7]. For 20 years the death rate from cancer among females has become steadily less. This almost certainly reflects a general improvement in standards of living as well as in diagnostic and therapeutic procedures. It is very doubtful if it is influenced to a substantial degree by the vast campaigns of public education to "get cancer early." That form of the disease particularly susceptible to diagnostic and effective therapy while localized, cancer of the breast, kills about as many women today as it did 20 years ago. Despite an improvement, a lessening of the cancer death rate among females, largely due to drop in fatality from cancer of the cervix and stomach, the increase in the male figure has more than negated the gain. The comparison of the total number of individuals of the two sexes dying of cancer in 1950, as compared to 1930, is particularly revealing. Whereas 5,000 fewer women died in 1950, over 12,000 men were fatalities. There was a net loss (increased death rate), on an age-adjusted basis, of 6,000.

Outstanding as is the increased incidence of cancer with age, it tends to obscure the fact that the disease begins to be important fairly early in life. Something in the range of 65,000 persons a year between the ages of 15-44 die of cancer—most of them, of course, in the senior group. Deaths from cancer in the 15-44 year-old group number between 80 and 90 per cent of those from heart disease[8].

The study of cancer incidence rates for different sites, by race and age, is revealing. It shows clearly that some factor is operative other than years of life. For cancer of the digestive system, the rates for whites and non-whites is almost identical to age 60 and then spreads with a rapid climb for the whites and a slow rise and fall for non-whites[9]. The difference (100%) is so great as to be well outside of statistical error. The same spread is seen for the other sites, such as skin and nervous system, thus ruling out this possibility[10].

It is interesting to note the sex distribution of cancer of the lung[11]. For the year 1914, the curve is flat with a barely perceptible age influence apparent. Since that time the sharpness of the curve has become steadily more prominent for both sexes[12]. The peak or hump is between years 45 and 75. This is regarded as consistent with the supposition that some new agent capable of causing cancer of the lung has become operative recently, an agent which affects males more than females and young adults before older ones.

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Marital status plays an important part in cancer incidence rates for white females for every age group except one, the period between age 60 and 75[13]. Clearly single women have a greater risk of cancer than do married ones. This is apparent furthermore despite the almost exclusive occurrence of cancer of the cervix in married white females (70%). Ovarian and breast disease prefer the unmarried. The first is clearly shown when the age distribution for ovarian cancer is plotted. At age 65, the incidence for single women is three times that for married ones[14].

Age incidence rates plotted for various histologic types of cancer disclose an impressive difference. Between the first and the tenth year of life there is virtually no cancer. At puberty, however, both carcinoma and sarcoma shoot up[15], though the latter never rises above 35 per 100,000 and the former continues on. Neutral, embryonal and mixed forms of cancer and melanoma begin in early adult life and continue to increase modestly to later years, without any sharp peak susceptible to interpretation on an etiological basis.

The distribution of various types of cancer during puberty (10-14 years) deserves consideration. In this period, the miscellaneous tumors occur with a predominance of lymphocytic leukemia[16]. Certain forms of cancer never occur before adolescence[17] and genital cancer rates show a striking correlation with developing hormonal activity[18],[19].

The figures presented indicate, in an inadequate way, the complexity of the problem of the aging process in the relation to neoplastic growth. From the fact, however, certain conclusions can be drawn. The principal one is that aging does not act *per se* but rather as an expression of other forces which require time to exert their effects. This is particularly apparent for infancy, for adolescence, for cancer of genitalia and for cancer related etiologically in some way to environmental changes.

Any epidemiological study must be evaluated in terms of what new facts it provides to permit better control of the disease process investigated. The data presented permit certain conclusions to be drawn, upon which more pragmatic studies can be instituted. There are two. The first is that environmental factors play an important role in cancer of the lung and of the cervix. This is in accord with other data which implicate the prolonged inhalation of cigarette smoke in the first and male hygiene in the second. The second conclusion is that an endogenous factor closely related to the endocrine system must be exceedingly important. The sudden change in incidence with puberty, the clear association of breast, ovarian, and prostate disease with radical and obvious changes in hormone function are unmistakable.

Aging and the cancer problem then can be to a substantial degree the expression of forces which lend themselves to analysis and control. After many years we have now addressed a vigorous attack to environmental carcinogens. Now following 15 years of intense biochemical research, methods are coming to hand which seem likely to yield dependable evidence concerning endocrine function. If the extension and application of these methods can be continued, the years ahead should be productive of much new information[20],[21],[22].

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Therapeutic Uses of Radioactive Isotopes*

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Although radioactive isotopes have been produced artificially since 1933, it has been only in recent years that many of the isotopes have been available for study and utilization in medicine. The present status of radioactive isotopes was not accomplished by any revolutionary change but rather represent the evolution in science over the past seventy years. However, the Atomic Energy Commission's release of isotopes for controlled general use beginning in 1946 was a tremendous stride forward in establishing the usefulness of isotopes. There are at least 10,052 known isotopes, of which 282 are stable. Since the usefulness of radioactive isotope depends upon the emission of either beta or gamma rays, the energy of these rays, the half-life, and the availability, this lowers the number of unstable isotopes to 209 with half-lives that range from twelve hours to sixty days[1]. A few of the longer-lived isotopes are useful in experimental work, but the decay is so slow that contamination presents a serious health problem, while with short-lived isotopes, in a few days or weeks decay will be accomplished to a safe level.

Cobalt^{60} which has a half-life of 5.3 years and which emits two very penetrating gamma rays of 1.16 and 1.32 mev, can readily be adapted as an instrument used for external therapy. From 300 curies to 1500 curies are required to be practical in external therapy. The source and the necessary unit to deliver a collimated beam can be purchased within the same price range as a conventional deep x-ray therapy unit. One of the major problems is that of protection to personnel since it is such an extremely penetrating beam. A below-ground, isolated installation is desired though this is sometimes inconvenient or not feasible. Although this method of therapy has not had enough time for adequate evaluation, the results so far would indicate that no spectacular increase in survival rate can be expected. It is somewhat easier on the patient in that radiation sickness is rarely a problem and the skin reaction is less. There are times when a larger dose can be delivered to a tumor and on occasions this extra dose may be important. However, the cure of any cancer treated by radiation still depends mostly upon the sensitivity of the tumor and the limitation of the tumor to the treated area.

Cobalt can also be used for interstitial application, and the advantages over radium are that the beta radiation can be screened easily with cobalt while 0.5 mm. of platinum is required for shielding the tissues from the beta ray of radium. There is no gaseous product in the decay of cobalt, while in the radium family radon is a gas which must be contained. Cobalt can also be prepared in many shapes. Currently it is being used in conventional applicators for cervical carcinoma, in interstitial needles, or it may be sewed in tumors if placed in inert nylon thread. However, in most instances, there is no reason to discard radium that is already available since it works equally as well as in interstitial therapy or intracavitary application. Furthermore, the relatively short half-life of cobalt is a disadvantage. Another radioactive isotope which may possibly be used in the future as a source of teletherapy is cesium^{137} which has a half-life of thirty-three years and has a gamma ray of 0.7 mev energy. Since this isotope is a product of fission, it does not represent energy expanded by the nuclear reactor. So far, no practical way has been found to isolate cesium from other fission products.

Radiogold which has an atomic number of 79 and an atomic weight of 198, has been found to be quite useful in the treatment of ascites and pleural effusions due to malignancies, particularly when the primary is ovary or breast. This isotope, with a half-life of only 2.7 days, is primarily a beta emitter with a maximum range of the beta particle in tissue of 3.8 mm. In a colloidal form radioactive gold is introduced into the peritoneal or pleural cavity. The beta rays inhibit fluid formation either by a direct effect upon the cell or by a non-specific fibrosis[2]. It is a palliative procedure only, but approximately half the patients benefit. Fluid accumulation may be retarded for as long as four to six months. Repeat doses may be given.

P^{32} in the form of a colloidal chromic phosphate also is being used for direct installation into pleural and peritoneal cavities. It is a beta emitter entirely and the beta particle is slightly more penetrating than that of gold. The longer half-life of 14.3 days of P^{32} also offers an advantage. This isotope has become the treatment of choice of polycythemia vera. Being chemically the same as stable phosphorus, it may be given either orally or intravenously. When given orally in a phosphate form there is approximately a 25 per cent loss by excretion, but since the dosage is more or less empirical though based on accumulated work of many investigators, the loss is not considered as a contraindication for oral use. The rationale of phosphorus in radioactive form being given in polycythemia is that the P^{32} is concentrated in bone, particularly the marrow, and has even more of an affinity for the immature red cells within the marrow. A single dose of 3 to 5 millicuries may give palliation for as long as one year. It should be emphasized that three months is usually required before the results of therapy can be evaluated, and as long as seven months might be necessary for the red count to show the result of therapy. Wiseman et al. [3]felt that the platelet count could be followed since thrombocytopenia may occur, but more important that therapy should not be given if the platelet count is not elevated. There is some disagreement as to whether there is prolongation of life but it certainly offers an economical method for the most satisfactory palliation with fewer thromboses than any other method[4]. It also must be kept in mind that acute myeloid leukemia occurs frequently in polycythemia vera. There is no evidence of any increase in death rate of leukemia in polycythemic patients due to P^{32} therapy. P^{32} may also be used in the treatment of chronic leukemias, particularly the myelogenous type. However, it is felt that x-ray therapy is more important than P^{32} since dosage can be readily controlled with x-ray. Also, P^{32} does not offer the lengthy remission time to leukemic patients as frequently found in polycythemia vera. It may be used in combination with x-ray therapy.

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Radioactive iodine is the most widely used radioactive isotope in medicine today because of the avidity of the thyroid foriodine. I^{131} has a half-life of eight days. When fission of uranium occurs in a controlled reaction, I^{131} represents one of the fission products. Therefore it is a relatively plentiful isotope. It emits both beta and gamma particles but is predominantly a beta emitter. As a diagnostic test of thyroid function it is reported to be 85 per cent accurate. Radioactive iodine in the treatment of Grave's disease represents the most successful use of isotope therapy to date. Because of the high uptake of iodine by the hyperfunctioning gland, a high concentration of ionizing radiation can be delivered to the thyroid gland with no significant effect upon other tissues of the body. The maximum range of the beta particles in the body is approximately 2.2 mm. with the average range being less than 1 mm. The gamma ray contributes only 3 per cent to the tissue irradiation. The usual response of a patient being treated for hyperthyroidism with a diffuse goiter is that of a mild degree of radiation thyroiditis during the first week, which may persist from three to five weeks. The gland may become firmer at this time. At six weeks some clinical response can be expected although three months is usually the required time to evaluate whether a remission has occurred. Hypothyroidism may occur and is not closely related to the dose although extremely large doses are more likely to produce hypothyroidism. The incidence in the literature varies from 1.5 to 15 per cent with the average being less than 10 per cent. According to Werner[5], radioactive iodine therapy currently offers close to 100 per cent relief of hyperthyroidism if the patients made hypothyroid are included.

The *disadvantages* of I^{131} therapy might be considered: 1) Fear of causing cancer. Ionizing radiation has been used in the treatment of thyrotoxicosis for a number of years in the form of x-ray and up to ten-year results are available with I^{131} therapy. Questionnaires sent to radiologists on the relationship of thyroid cancer to x-ray therapy have failed to show any increased incidence. No cancers have been reported with I^{131} therapy in ten-year follow-ups[6]. 2) Fear of genetic injury. This is not an important consideration since the total body radiation is smaller than many diagnostic x-ray procedures. 3) Relative ineffectiveness in toxic nodular goiter. It is felt that surgery is generally the treatment of choice in a toxic nodular goiter because of the increased incidence of carcinoma in toxic nodular goiters and because of the relatively high doses of I^{131} necessary to control these goiters. 4) Extremely large goiters. Here again, fairly large doses are necessary and the extremely large toxic goiters might better be handled by surgery although I^{131} therapy may be offered as an alternative procedure. 5) Incidence of hypothyroidism. This is mostly a statistical finding and it is felt that there is almost an equal occurrence of hypothyroidism by either surgery or I^{131} therapy.

INDICATIONS in toxic diffuse goiter: 1) In all patients with toxic diffuse or exophthalmic goiter in whom the surgical risk has become excessive. 2) All patients with a recurrence of symptoms following operations. 3) Patients who refuse operations. 4) Inability to prepare the patient properly for surgery. 5) Perhaps in all patients over 45 years of age who do not have large goiters. In the patient with small goiters it is understood that the surgeon has some difficulty in determining the exact amount to be removed and these small goiters do extremely well with I^{131} therapy.

CONTRAINDICATIONS: 1) Never in non-toxic nodular goiter, or in non-toxic diffuse or simple goiter. 2) Never in toxic nodular goiter when the uptake is low. 3) Never during pregnancy because of the ability of the fetus to concentrate iodine in the thyroid gland, particularly in the last four months. 4) Never in substernal goiter. 5) Preferably not in younger patients. This finding represents a compromise because of the remote possibility of a late carcinogenetic effect. So far there have been no indications that such will occur.

In contrast to the specificity of the iodine for hyperfunctioning thyroid glands, the majority of thyroid carcinomas do not have a high enough uptake to be successfully treated by I^{131}. The alveolar and follicular types of thyroid carcinoma are more likely to take up significant amounts of I^{131} with the papillary, the solid, and the Hurthle cell types being less likely to take up significant amounts. Surgical extirpation of the thyroid cancer is the treatment of choice. X-ray therapy may be used when surgical removal is not complete. However, there are times when I^{131} therapy may be useful in treating local recurrences, residual tumor, or inoperable cancers of the thyroid. An uptake study can be done without difficulty and would give an idea as to the possibility of isotope therapy. There have been cases where metastases have been treated with relief of pain following surgical removal of thyroid, With the thyroid removed, metastases will occasionally begin picking up enough iodine so that I^{131} therapy can be given with relief of symptoms.

SUMMARY

Of the many artificially produced isotopes that are available today, cobalt^{60}, gold^{198}, P^{32}, and I^{131}, are the ones the most used and generally accepted. The most successful of these is I^{131} for treatment of toxic diffuse goiter. Cobalt^{60} offers several advantages over conventional x-ray therapy to the radiologist although no spectacular increase in cures of cancer can be anticipated. Worthwhile palliation can be obtained through the judicious use of radioactive gold and phosphorus And finally, other useful isotopes and other chemical combinations of the presently used isotopes may in the future aid further in the treatment of malignancies and other diseases.

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Greatness and goodness are not means, but ends!
Hath he not always treasures, always friends,
The good, great man? Three treasures—love and
    light.
And calm thought, regular as infants' breath;
And three firm friends, more sure than day and
    night—
Himself, his Maker, and the angel death.

—Coleridge

Virus Hepatitis*

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SEEMINGLY, there has been an increase in virus hepatitis over the past few years. Locally, this has been particularly noticeable in the past year. At the Street Clinic there have been 57 cases of virus hepatitis diagnosed in the past five years. Twenty-four of these were under 20 years of age; 20 between the ages of 20 and 40; and the remainder were over 40 years of age. Fifty cases were in the white race and seven in the Negro. They were equally divided as to sex, 29 males and 28 females. Thirty cases were sufficiently ill to merit hospitalization, mainly for the control of nausea and vomiting. In the group of 57 cases, 48 were of the infectious type and nine were homologous serum hepatitis. It is interesting to note that during the combined years of 1949, 1950, and 1951, there was a total of only 17 cases, whereas there were 12 in 1952 and 28 in 1953. For the current year, it seems there will again be a high incidence. At present, I am caring for four cases in one family alone. Three of these had definite jaundice, while one was anecteric. However, all had positive liver function tests.

Because of these facts, the review of this subject as to our more recent knowledge seems indicated.

It has been established that the etiological agent in virus hepatitis is a filterable virus. There still remains some indecision as to whether the same strain of virus causes both infectious hepatitis and homologous serum hepatitis[1]. Arguments for different strains stem from the fact that infectious hepatitis has an incubation period of 15 to 40 or more days and can be transmitted through the ingestion of infected material and is present in both blood and feces during the active phase of the disease. Also, there is the probability of a fecal carrier state lasting varying periods of time. In contrast, serum hepatitis has an incubation period of from 60 to 150 or more days and the virus can only be demonstrated from blood and blood products. Through other studies, it appears that the strains are anagenically different[2].

The transmission of infectious hepatitis may be from the parenteral route, from contaminated food, water or milk, and naturally other substances. The fecal oral mode of transmission is by far the most common and particularly is this true in epidemics.

Serum homologous hepatitis has thus far only been shown to be transmitted by the parenteral route and possibly by the transplacental route. The most common source of parenteral transmission of serum hepatitis is from blood products or blood. Of these, blood plasma is probably the most frequent offender and plasma obtained from large pools of blood is naturally more like to be infectious than plasma obtained from small pools of blood.

Lehane[3] and associates compared the instance of serum hepatitis after transfusions from large pools of plasma, from small pools of plasma, and whole blood. They found the instance of hepatitis 11.9 per cent, 1.3 per cent, and .08 per cent, respectively. From this, routinely we should use either whole blood or plasma from small pools when at all possible. Also, Lehane confirmed the impression that children are relatively resistant to serum hepatitis but highly sensitive to infectious hepatitis.

Other agents of transmission of serum hepatitis have been reported by the use of infected needles or instruments transmitted by means of injection therapy, such as diabetics taking insulin, dope addicts taking dope, and contaminating tatooing instruments. Laboratory workers when dealing with possibly infected material have to be extremely cautious because cases have been reported whereby the infection was transmitted by this means.

Clinically, infectious hepatitis may be divided into four stages—incubation, preicteric stage, jaundiced period and the convalescent period. The usual early symptoms are loss of appetite and nausea, frequently there may be upper abdominal discomfort often increased by exercise. General malaise, fever. chills, headaches, loss of appetite, and distaste for tobacco, are frequently seen. Clinical lymphadenopathy may develop during this stage. After five to ten days of the prodromal symptoms, the preicteric stage is developed with particularly varying degrees of fever, nausea, vomiting, weakness, etc. The liver becomes tender and probably palpable or enlarged and splenomegaly may exist. Color will be detected in the urine and clay-colored stools will develop during the latter part of this stage. The jaundiced period, though always not present in respect to jaundice, finds the fever termination and the patient feeling much better with ability to retain food and with an increase in appetite. This period may last 20 to 30 days, though there are instances of jaundice lasting much longer. The convalescent period may last for months, but generally speaking three months should be considered a minimum. During this period, relapse is more common and physical inactivity is highly important in caring for the patient.

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Before leaving the clinical discussion, it is particularly desirous to stress the possibility of anicteric hepatitis. This type occurs probably more frequently than has previously been realized. If during any epidemic one complains of malaise, nausea, or fever, or found to have an enlarged or tender liver, one must absolutely consider the possibility of hepatitis and try to prove this diagnosis with the necessary laboratory procedures and follow-up of the individuals.

Infectious hepatitis has always been considered to be milder in children than in adults and affects children and young adults more frequently. Webb[4], et al., observed in children with acute infectious hepatitis, a higher instance of hepatitis without jaundice than with jaundice.

Infectious hepatitis is probably infrequent during pregnancy, but Zondez and Bromberg[5] recorded 29 cases, five of whom died of acute liver atrophy and two developed a chronic hepatitis.

From the differential diagnostic point of view, only a few diseases would give us much trouble in our section of the country. Naturally, the main differentiation will be whether infectious or homologous serum hepatitis is present. Infectious hepatitis is more abrupt and generally more toxic, but there will usually be the presence of other cases, particularly when there is an epidemic. On the other hand, serum hepatitis is more insidious in its onset and generally less toxic, and will give a history of a long incubation dating from the administration of plasma, blood or injections, etc. Infectious mononucleosis frequently causes trouble in the differentiation because of the hepatitis and jaundice that can occur as part of acute mononucleosis. If hepatitis is present with mononucleosis, the liver function test can also be positive. However, the heterophil agglutination will eventually become positive and determine the diagnosis. Actually, the early phases of acute virus hepatitis may simulate pancreatitis, gastrointestinal infections and other conditions. Obstructive, and occasionally other forms of jaundice may give some concern in the differentiation.

In establishing a diagnosis, certain laboratory aides are mandatory. As in any condition, the laboratory findings are considered only in the light of your history and physical examination. Various liver function tests have been used, such as the bromsulphalein, alkaline phosphatase, icterus index, bilirubin levels, etc. However, they have generally relied mostly on the thymol turbidity and/or the cephalin flocculation tests. Neither of these tests are particularly complicated and both on the whole give the desired information necessary. The cephalin cholesterol flocculation test is of value in indicating the presence of incipient or occult damage to liver cells in patients with or without jaundice. It is also of value as a guide in following the progress of cases with hepatitis and the test usually remains positive until the active disease process involving the liver cells has ceased. The test, however, does not indicate quantitatively the degree of liver impairment or the reserve of liver function. The thymol turbidity usually becomes positive at a later date and persists longer than does the cephalin cholesterol flocculation. The thymol test has several technical advantages in that it is more easily prepared, has a more stable solution and can be interpreted in one-half hour instead of the 48-hour period in the cephalin cholesterol flocculation. It may be somewhat more specific, too.

As far as the sequelae of this disease, the great majority of patients with acute hepatitis will recover eventually. In some cases sequelae will occur. These may be manifested by recurring jaundice, recurrent positively or continuous positive liver function tests, palpable liver, spider angiomatas and others. In a certain few, severe liver diseases may progress rapidly with eventual death. Clinical symptoms of varying intensity may continue or recur such as indigestion, fatigue and anorexia. However, many patients with physical or laboratory indications of continued trouble may never have any clinical symptoms at all.

PREVENTION

Gamma globulin appears to be our only effective agent in the prophylaxis of infectious hepatitis. After study of three institutional epidemics, Stokes, et al.,[6] concluded that a single injection of immune serum globulin caused protection for five to nine months but also believed that the passive immunity afforded the opportunity for subclinical infections and thus allowed the development of active immunity; in other words, active immunity superimposed on the passive immunity. There is the possibility that active immunity may be produced by the skin test, but, as yet, this requires further confirmation. There is no permanent immune vaccine at this time.

Presently in epidemics or when a case of infectious hepatitis presents itself, prevention routine is to give the immune globulin to family contacts of the patient. Probably the limited supply accounts for its narrowed usage. Certainly, as a prophylactic measure in pregnant women exposed to the disease, immune gamma globulin will be given.

Gamma globulin should also be given to those who have had injections or cuts with instruments used in infected cases of hepatitis.

Much has and can be done in the prevention of homologous serum hepatitis. We know that the source of this infection is the transmission of the virus from blood, plasma, and blood products. Consequently, it is mandatory that prospective blood donors be screened carefully, as to the possibility of their being carriers, even doing liver function tests if necessary. Plasma, because it is derived from pools of blood, is naturally more apt to contain some infected material and the use of it should be weighed with the need. Much work has been done to inactivate the virus in plasma and render it virus free. Ultra violet irradiation of plasma or serum was thought to accomplish this aim. However, numerous papers have recently appeared in the literature reporting cases of hepatitis after the use of this product[7]. Allen, et al.,[8] presented data indicating that when plasma is stored in the liquid state without preservatives at temperature between 80 and 96 degrees Fahrenheit for three months or longer, homologous serum jaundice is infrequently encountered, if indeed it occurs at all. Further time and usage of this material will determine its permanent status.

Serum albumin is becoming more popular in its routine usage in shock, burns, etc. It is a stabilized product and can withstand heat to eliminate the virus. Its cost per unit compares favorably with plasma.

Another plasma volume expander in use today is dextran. It is a water soluble high molecular weight, glucose polysaccharide. Its molecular weight being approximately that of human plasma and has its advantages in that it rarely produces untowards reaction, can be stored at any temperature above freezing and will produce a prolonged satisfactory plasma volume expansion. It does not interfere with blood typing or cross matching and again its cost is well acceptable.

All of these substances have their usage in combating shock and other conditions until whole blood can be given. If we consider the possibility of serum hepatitis, then plasma should be given with caution and preferably replaced by serum albumin or dextran or other similar substances.

Prevention of chronic hepatitis or relapsing hepatitis will, to a great extent, depends on the treatment and care given patients during their acute stage. Continuing symptoms and chronic liver impairment can and do frequently occur and the possibility of the development of cirrhosis and its severities are always confronting us.

As far as blood banks are concerned as to the acceptance of blood from known hepatitis donors, here again is indecision. Little is known as to the presence of the virus in even chronic hepatitis. Many blood banks refuse blood from donors with the past history of jaundice, whereas others will accept donors who have had no history of jaundice during the previous six to twelve months. We have as yet no way of determining the maximum period of a carrier state of hepatitis virus of either infectious or homologous serum jaundice. Also, the fact that so many may be of the anicterie variety makes the above even more complicated.

TREATMENT

For the most part, treatment will be dictated according to the severity of the illness. Generally speaking, most of the milder cases will need very little treatment other than bed rest during the acute and active phases and the curtailment of physical activity for at least three months. Naturally, a diet of high calories, proteins and carbohydrates is conducive to a more rapid liver recovery. Vitamins have their place and apparently are a necessary additive therapy. The problem cases are those more acutely and severely affected. Intravenous infusions, vitamins and even large doses of vitamin K are imperative. The control of nausea and vomiting frequently is a perplexing problem and recently I have found large doses of intramuscular dramamine varyingly effective. Despite all heroic therapy, there remains those relative few who progressively succumb to an overwhelming liver breakdown.

No particular value can be attributed to chloride, methionine, etc., though there is some indication that normal human serum albumin may be beneficial, especially in those with severely damaged livers.

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DISCUSSION

Dr. Gayden Ward (Jackson) —Dr. Ferris is to be commended upon the very concise manner in which he has covered a very large subject. In discussing this paper I shall confine my remarks to two subjects; first, of non-jaundiced infectious hepatitis and, second, long-term follow-up and conditions one might expect in post-virus hepatitis.

It is well to bear in mind that not all of the cases of virus hepatitis are accompanied by icterus. In fact, in many series, particularly those in younger children and infants, the incidence of jaundice among the virus hepatitis cases is considerably less than 50 per cent. Capps of Chicago reports that in the infectious hepatitis among infants, the incidence of non-jaundice cases may be at least 75 or 80 per cent. This fact was very forcibly brought home to me about 10 years ago, when I saw the first case that I recognized as virus hepatitis without jaundice. I remember it very distinctly because I wasted some time, approximately two weeks, in attempting blood cultures, urine cultures, stool cultures, and other diagnostic and therapeutic measures directed toward the possibility of finding a blood stream infection or a systemic infection; when I should have focused my attention on the liver. Fortunately, the patient recovered and is well today.

While considerable attention has been directed toward the possible after effects of acute hepatitis, conflicting reports have appeared concerning the incidence of long-term residual in this disease. Many are of the opinion that 75 or 80 per cent of the cases of infectious hepatitis show residual changes demonstrable by laboratory methods and clinical examination, while others are equally convinced that the incidence is much lower. I believe that the pathologists are in agreement that there is a different picture seen in the pathological study of this liver. Of course, due to the high alcohol consumption of today, there is frequently the mixed picture of Laennec's cirrhosis with virus hepatitis cirrhosis.

To throw further light on this subject, Zieve, Hill, Nesbitt, and Zieve* evaluated the hepatic function of 367 ill veterans from the Minneapolis metropolitan area, who had had acute viral hepatitis four to six years previously, and compared the results with those of a control group of corresponding size. In the hepatitis group there were 144 clear-cut cases of serum hepatitis and 186 cases of infectious hepatitis. Twenty-six men had had multiple attacks of hepatitis; either separate attacks or recurrences. In the remaining persons, the type of hepatitis was unknown. In the group that had not had hepatitis, there were 137 men, who, during army service, had been heavily exposed to viral hepatitis without becoming jaundiced or showing any signs of the disease. There were, also, 212 persons who had not been exposed to endemic or epidemic areas of hepatitis and had no history of jaundice, liver disease, excessive alcohol, *et cetera.* Needle biopsies were also performed on 60 persons who had had hepatitis and on 16 with no history of hepatitis. Peculiarly enough, the liver biopsies were normal on all but two of the hepatitis group and four of the control group. With the exception of a single case of non-specific granuloma in each of these series, the abnormalities could be correlated with the excessive intake of alcohol. In essence, the various groups studied failed to reveal differences by tests which measure hepatocellular dysfunction or by liver biopsies. Thus, they conclude that the occurrence of functional or structural abnormalities among the men who had viral hepatitis four to six years previously was no greater than that of the control group. However, this study was limited to male veterans who had icteric viral hepatitis and the possible outcome of the disease in different age groups and sexes, and of non-icteric hepatitis is not necessarily clarified by this study.

Liver biopsies performed in large groups, and studied by many investigators, tend to confirm the opinion that while some patients do have a residual hepatitis, pathologically, it is by no means the picture of portal cirrhosis associated with alcohol, nor is the liver damage as dangerous to later life as one might expect. Personally, I am of the opinion that the picture presented by these statistics is not entirely comparable with those seen throughout the country, as a whole, and may lead some to the false conclusion that viral hepatitis is not a serious disease with its after effects. I think the picture, in many ways, may mimic the various nephritides that we see—some die, some progress to a chronic nephritis with a rapid down-hill course, others have a relapsing disease, and fortunately, the larger percentage of all become well without any demonstrable residual disease.

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*Zieve, L., Hill, E., Nesbitt, S., and Zieve, B.: Incidence of Residuals of Viral Hepatitis, Gastroenterology 25: 495, 1953.

Until further evidence has been studied, sifted, and evaluated, I think the practitioner of medicine would be wise to treat his cases of infectious hepatitis very conservatively and very cautiously for a long period of time. Particular emphasis should be placed upon good dietary habits, the maintenance of good nutrition, and the complete abstinence from alcohol in these people.

Dr. Wm. E. Weems (Laurel)—Our experience in south Mississippi in the past year or so has also indicated an increased incidence of infectious hepatitis, so a review of the subject is timely.

I would like to remind you that the virus of infectious hepatitis is blood borne, whether it be due to the so-called infectious (Type A) or to the homologous serum (Type B); and because of this, we as physicians may be contributing to its increase should we be using unsterile equipment for injections, venipunctures, or even a finger prick for a blood count. Hollow needles for the latter are to be particularly condemned, and it is now recommended that a new sterile blade be used for each finger prick. All syringes and needles should be autoclaved prior to use, and if this is not possible, they should at least be sterilized and allowed to be completely dry before using. If these precautions are followed, at least we as physicians can rest assured that we are not responsible for the increased incidence of this disease.

In recent months there has been a change in the point of view with respect to the amount of rest needed in hepatitis. An acutely ill patient should be kept at bed rest, at least until he passes a so-called "crisis," and begins to improve. Complete bed rest is no longer considered necessary in convalescent hepatitis. It has been adequately shown that no harmful effects need be expected if a patient is allowed to be up-and-about part of the time, after he has begun to improve. His activities should be moderately restricted, however, throughout convalescence.

ABSTRACT FROM PEDIATRIC LITERATURE

By Harvey F. Garrison, M. D.

Action of ACTH on Immunization and On Protein Picture of Children Vaccinated with Diphtheria Antitoxin. E. Bottone, L. Poli and G. Fascione. Arch. ital. pediat. e puericolt. 17: 263-297 (No. 4, 1955 in Italian), Bologna, Italy).

The authors report the results of studies on normal children vaccinated with diphtheria antitoxin in whom they studied the action of corticotropin (ACTH) on the process of immunization, 30 mg. of the hormone for 10 days and 15 mg. for another 10 days. Nine children served as controls and received injections of isotonic sodium chloride solution in daily doses that were equal to those of corticotropin. Blood samples were collected from all the children before and 10, 20, and 30 days after the vaccination. Comparison of the average increase of the serum antitoxin titer in the two groups of children did not reveal significant changes in the first 20 days, but after 30 days the increase was more marked in the children who had received the hormone. The antitoxin titer increase was marked (100 times greater than the initial value) in 60 per cent of them, moderate (50 times greater) in 30 per cent, and slight in 10 per cent. The respective figures for the controls were 40 per cent, 20 per cent, and 40 per cent. These results, unlike those of other workers, indicate that corticotropin does not inhibit the immunization process. Electrophoretic studies revealed a constant and progressive decrease in the total protein level of children who received the hormone, whereas in the controls the most marked fall occurred on the tenth day after the vaccination. In both groups the changes in the total protein level were correlated with the variations in the albumin and globulin level. The decrease in the albumins was less marked in the children who had received the hormone, in whom the globulins had increased slightly by the tenth day, returned to the initial values by the twelfth, and decreased slightly by the thirtieth. In the controls the globulins had increased by the twentieth day and decreased below the initial values by the thirtieth day. No parallelism was found in the two groups of children between the gamma globulin and the antitoxin levels.

Comment: The observation of the investigators in this case, to say the least, is very revealing and of interest to the medical profession, more particularly to those of us who are doing pediatrics. I commend the article to be read by all physicians.

Office Management of the Preeclamptic*

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ALTHOUGH my subject is a medical discussion with emphasis on adequate and intelligent prenatal care in office practice in an effort to decrease the incidence of preeclampsia and to arrest the progress of preeclampsia to eclampsia, I wish to point out that the formidable problem of control of the disease, toxemia of pregnancy, is not only medical but lies, also, in the educational and economic realm. Each case of eclampsia could be considered preventable if all pregnant women had adequate prenatal care with full cooperation from the patient. It is a well-recognized fact that the majority of the patients who develop eclampsia in the last trimester of pregnancy have had no previous medical care or inadequate ante-partum care. In a study of 47 consecutive maternal deaths in a Southern state Ferguson[1] reported 20 women who died of toxemia, 13 had no prenatal care, while 3 had only 1 or 2 visits to the physician. Only 4 of the 20 were said to have had adequate prenatal care and this was based only on number of visits to the physician and not on the adequacy of the medical care.

A large part of the blame for neglect of ante-partum care must be leveled at ignorance on the part of the people in the lower socio-economic group. They do not realize the necessity for medical care throughout a pregnancy and many are unable to pay the expenses which are associated with good obstetric care. From a social, economic and medical standpoint every pregnant woman should feel the responsibility to seek and have the opportunity of obtaining adequate prenatal care, for toxemia is the leading cause of maternal deaths in the Southern states. The latest available statistical figures reveal that Mississippi in 1953[2] had a total of 119 maternal deaths, 59 due to toxemia, 25 to hemorrhage and 4 to sepsis. The steady decline in maternal deaths in this state since 1935 has been due to better control of infections and hemorrhage, the control of toxemia has lagged. I must agree with Faison[3] who states, "If ready availability of blood is to be regarded as a basis of a program to reduce deaths from hemorrhage, so might adequate ante-partum care be regarded as a basis of a program to reduce deaths from toxemia."

What is adequate prenatal care? This is defined by the Children's Bureau and by the American Committee on Maternal Welfare[4] as follows:

> A history and physical examination, including pelvic measurements, serologic test for syphilis, and hemoglobin determination should be obtained. The patient should be seen as early as possible in pregnancy and at each visit she should be weighed, the blood pressure taken, and a urinalysis made. She should be seen once each month during the first five months, then every three weeks during the sixth and seventh months, every two weeks during the eighth month, and weekly during the last month. The prenatal care is said to be adequate if the above criteria have been fulfilled and if the patient is seen by the fourth month of pregnancy.

This definition can only be regarded as a baseline, for equally important is the amount and character of instructions given the patient and her ability and willingness to cooperate.

Preeclampsia, characterized by the triad edema, hypertension and albuminuria, is the mystery of obstetrics and a disease of theories. No one knows the etiology or whether the disease can be prevented and there is no agreement as to any specific therapy other than the termination of the pregnancy. The borderline between the physiologic changes of pregnancy and the pathophysiologic changes of toxemia is narrow and treatment must be instituted at the earliest sign in an attempt to prevent the full course of events in a patient, i.e., excessive weight gain, edema, proteinuria, hypertension, symptoms of increased intracranial pressure and, finally, convulsions. All patients with preeclampsia begin by exhibiting mild signs. The patient with preeclampsia may have only edema or hypertension. Proteinuria rarely accurs alone. In early prenatal care detailed instructions, both written and oral, should be given the patient concerning her diet and weight control; these are considered preventive measures.

Dieckmann[4] places all normal pregnant patients on an 1800-calorie diet and increases the number of calories if she has several children or does heavy work. This diet contains 85 gm. of protein daily. To obtain this quantity the pregnant woman needs 1 quart of milk daily (for its 32 gm. of protein), at least 1/4 pound of lean meat or its equivalent (for its 24 gm. of protein) and an egg (for 6 gm.). A potato together with at least four servings of bread and cereal foods and the other necessary foods, vegetables and fruits, in a well-balanced diet will furnish 20 to 25 gm. of protein.

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*Presented before Section on Prev. Medicine at the eighty-seventh annual meeting of the Mississippi State Medical Association, May 10-12, 1955.

Tompkins and Wiehl[5], who believe the so-called "toxemias of pregnancy" are in reality nutritional deficiency states have amply shown there is a higher incidence of preeclampsia in those individuals who at the beginning of pregnancy were 20 per cent under weight than those individuals who were found to be 20 per cent over weight. This is contrary to our general impression, clinically, but their well controlled research results are impressive and they re-emphasize the patients' nutrient needs as to vitamins and proteins during the first two trimesters, as well as control of weight gain during all three trimesters.

Extensive experience has confirmed the belief that excessive and too rapid gains in weight are associated with preeclampsia in a high percentage of the cases. The periodic weighing of patients as a means of detecting possible toxemia is a most important part of prenatal care. It is a generally accepted fact that the weight gain during a normal pregnancy is 20 to 25 pounds or according to Alexander and Downs[6] 17 per cent of body weight. Most physicians attempt to limit excessive weight gain in pregnancy, but fail to realize that the total weight gain per se has very little, if any, influence on the development of preeclampsia. Much more important than the total weight gain is the rate of gain, especially in the last trimester. The average gain per week of normal pregnant women amounts to 0.45-0.17 kilograms (0.99-0.37 lb. per week). The incidence of preeclampsia is significantly increased in those individuals who gain over 0.6 kilogram (1.2 lb.) per week.

The excessive changes in weight during the last trimester are most likely due to alterations in the water balance- There is evidence indicating that normal pregnancy is characterized by a delayed elimination of water and sodium and this delay in the excretion of these substances is intensified in the preeclamptic patient. Varying degrees of edema of the ankles is a frequent finding in the normal pregnant patient and the incidence is quite high in hot weather. This edema decreases or disappears after eight or twelve hours of bed rest. Pretibial pitting edema which does not disappear after eight to twelve hours of bed rest in the pregnant patient is an abnormal occurrence in the absence of varicosities or of a previous phlebitis and may be due to preeclampsia, vascular-renal disease, anemia, heart disease or malnutrition. Any edema of the face or hands is an abnormal finding. Early and persistent treatment can prevent further progression of the edema present in the extracellular and intracellular compartments of the body. In early preeclampsia, though the pitting edema be slight, the sodium ion intake must be curtailed and the output increased. Again adequate written and oral instructions should be given the patient. It is not enough to say, "You must go on a salt poor diet." The patient should be told which foods she should not eat as well as the foods she should eat. Certain home remedies, such as baking soda for heartburn must be stopped. The low sodium diet should contain less than 3 gm. of sodium daily and no salt or baking powder can be used in the preparation of foods or the baking of breads or rolls.

There are several methods of increasing the sodium ion output. The simplest and probably the most widely used as a diuretic is ammonium chloride. Eight to twelve gm., orally in divided doses, should be prescribed daily for three to five days and reported after an interval of three to five days if necessary. At least six to eight glasses of water should be ingested daily. Usually the low sodium diet, adequate ingestion of water and a diuretic is all that is needed to control early pitting edema. If, however, after three to five days there is increasing amount of edema one should alternate the ammonium chloride with one heaping teaspoonful of magnesium sulfate daily for three days or use an ion exchange resin, such as carboresin, 48 gm. daily for four days.

The symptom, hypertension, is not as easily interpreted as that of pretibial edema but certain trends of blood pressure changes may indicate impending development of early preeclampsia. Blood pressure studies which have been made in pregnant and nonpregnant women seem to indicate the systolic pressure drops from 5 to 10 mm. of Hg. below the normal nonpregnant level between the eighth and thirty-second week and then increases toabout the nonpregnant level as the pregnancy progresses. The average normal blood pressure in early pregnancy is 108/69 and at term it is 115/76 mm. of Hg. An increase in the systolic pressure of 40 mm. of Hg. or more for several days, even though the final pressure is less than 140 mm. of Hg., should be regarded as abnormal. The diastolic pressure also rises with the systolic but Dieckmann[4] considers a steady rise in the systolic pressure as a more sensitive indicator of approaching toxemia and the diastolic blood pressure as a better prognostic guide in response to therapy. Any normal pregnant patient who has a rise in blood pressure to 140/90 mm. of Hg. or above in the last trimester is classed as a preeclamptic. Bed rest, morning and afternoon, and mild daytime sedation is advocated in conjunction with the treatment for edema and excessive rate of weight gain. At the present time the use of hypotensive drugs, such as apresoline and protoveratrine, a purified alkaloid of veratrum is recommended only for the hospital patient.

If any patient with signs of mild preeclampsia fails to respond to the above regimen and there is increasing edema and/or proteinuria or the blood pressure continues to rise, she should be hospitalized for better control· All patients with signs and symptoms of severe preeclampsia should be hospitalized· Any preeclamptic, whether mild or severe, who complains of an intense boring headache, marked dizziness, diplopia, dim vision or small output of urine needs hospitalization for adequate treatment.

SUMMARY

To reduce the material mortality and increase the fetal salvage in this state, greater efforts must be made to control toxemia peculiar to pregnancy. This is an educational, socio-economic, as well as, a medical problem. Early and adequate prenatal care may reduce the incidence of this condition; however, this is debatable as the etiology of toxemia of pregnancy remains obscure. Eclampsia should be considered a preventable condition for with adequate care and full cooperation of the patient the progression of the disease from preeclampsia to the convulsive stage can be arrested or reversed.

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Hemolytic Anemia Associated with Copper Sulfate Poisoning*

RICHARD H. ROBERTS, A.B., M.D.
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THE FOLLOWING is a case study of a patient who ingested a compound with which all physicians and many laymen are familiar. This compound is copper sulfate. It may be purchased in any drug store. It has only a few uses—the most common to medical personnel is its employment in the familiar Benedict's test for sugar, dependent upon the reduction of the copper salt for interpretation. Copper sulfate is seldom used today for any antiseptic, astringent, anthelmintic or emetic effect. Recognition of its importance in trace amounts in the diet, however, is nothing new. It has been demonstrated that it plays an important role, presumably as a catalyst, in the construction of a hemoglobin molecule. Liver-stored iron is not readily transferred to the red blood cell in the absence of copper. The average daily diet contains between 0.8 milligrams and 4.8 milligrams of this element. This article is concerned with an individual who knowingly consumed an estimated 20 grams of copper two times and sometimes three times weekly for a period of four months. It is notable that each dose amounted to about one hundred times the lethal dose described by Wakefield[1].

The author reviewed all cases of copper sulfate poisoning admitted to a large city hospital over a seven-year period. Eight cases had been treated, the most recent being the case discussed today. The patients included two colored female adults, one white female adult, three colored male adults, and two colored male children. In the latter group, one was two years of age; one was sixteen months of age. In two of the instances, it was taken with suicidal intent. The remainder either ingested the drug accidentally, or took it for some supposed therapeutic value. All patients recovered. The amount varied from a small amount one patient ingested while gargling a solution of the substance, to an approximate total of 600 grams of the crystals taken over a period of about four months. Each of the patients presented the usual signs and symptoms of corrosive poisoning; abdominal cramping, nausea and vomiting. In addition, the case under discussion developed hemolytic anemia.

The literature on copper metabolism and intoxication is rather meager. The author has found no previously reported cases of hemolytic anemia definitely due to copper. Beckman[2] states that copper sulfate is used therapeutically in doses up to four grams as an emetic in aspidium poisoning, and doses up to 0.5 per cent as an enema in bacillary dysentery, and doses up to 0.06 grams three times daily per os for blastomycosis. Goodman and Gilman[3] feel that copper is concerned with hemoglobin formation in that stored iron is mobilized for its production when copper is fed. They say that the normal urine contains about 0.1 milligram per liter. These authors further describe the properties and effects of copper salts; they possess a nauseous metallic taste, usually cause immediate vomiting, and are irritant and astringent. Goodman and Gilman indicate that copper is apparently a neuromuscular poison and may cause systemic symptoms if enough is absorbed. They do not enlarge on the latter statement. French[4] describes ptyalism, dermatitis, and a green sweat due to copper—also cacogeusia (foul taste in the mouth). Cecil[5] describes excessive salivation due to copper poisoning. Saphir[6] comments on the presence of a green slough in the gastrointestinal tract as an indication of copper poisoning. Clemedson and Norberg[7] found the MLD of copper chloride, copper sulfate and glycocoll copper was over 2 milligrams per kilogram when given intravenously to rabbits. Forbes[8] reported a case of acute liver necrosis following ingestion of copper. In 1948, Uzman and Brown[9] recognized the role of faulty copper metabolism as a factor in hepatolenticular degeneration. A physician in Oklahoma, in 1940[10], wrote the *Journal of the American Medical Association* in regard to a farmer who developed an anemia following exposure to an insecticide for treating wheat. This insecticide contained copper carbonate. The consultant who responded to his query stated that anemia due to copper had not been reported in the literature. There was a question, concerning a case in 1951[11], of an anemia in a jeweler exposed to a mixture of phosphorus, tin, copper and graphite. Here, the multiplicity of toxic substances hindered the detection of the cause of the anemia. Bearn and Kunkel[12], in 1954, observed that Wilson's disease was accompanied by a high urinary copper. Hornbostel[13], in the same year, made further observations of this syndrome and its relation to copper metabolism. He also pointed out that BAL might be useful in copper intoxication.

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*Presented at the quarterly meeting of the Northeast Mississippi Medical Society, Aberdeen, Miss., September 13, 1955.

CASE REPORT

W. D., a 24-year-old colored male laborer, was admitted to the hospital with complaints of abdominal pain and vomiting of approximately five hours duration. He readily admitted having taken about 1½ tablespoons of copper sulfate crystals the morning of the day of admission. He stated that he did not know that the drug was poison, and had been taking it for several months, two to three times weekly. On occasions, he had taken two doses in one day. The usual amount ingested was about 1 tablespoonful at a time, accomplished by putting the crystals in his mouth, and washing them down with water. He took the substance for a pain in the lumbar region, which he had had for about three years, stating that he had heard people say that "bluestone was good for soreness." He had no symptoms similar to his present ones after taking the drug previously but pointed out that his last dose was a little larger than the previous ones. The last box of the crystals which the patient had purchased was brought to the hospital, and readily identified as copper sulfate; incidentally, there was a large "POISON" label on the box. Past illnesses included pneumonia three times. There was no history of the usual familial diseases. The patient was married, worked eight hours daily, ate an adequate diet, smoked and drank moderately, used no drugs other than the copper sulfate.

On admission, a gastric lavage was done, and what appeared to be copper sulfate crystals were seen in the stomach contents.

Admission temperature was 102.4°, the pulse rate 108 per minute, and respiratory rate 22 per minute. The blood pressure was 140 millimeters of mercury systolic and 70 millimeters diastolic. The patient was well developed and well nourished, attempted to be cooperative, but demonstrated some obvious clouding of the sensorium. He was also quite restless at times. External ocular movements were normal; pupils were small, equal, reacted sluggishly to light; the sclerae were icteric. Ophthalmoscopic examination was unsatisfactory. The ears, nose, and throat revealed nothing of interest, other than a rather thickly coated tongue. The thyroid gland was not enlarged on palpation. The trachea was mid-line. The heart was not enlarged and no murmurs were present; the apical rate was 120 and the apex beat quite forceful. The lungs were clear and resonant. The abdomen was painful to palpation in both lower quadrants; no masses were felt, the spleen and liver were not enlarged. There was pain on percussion over the costovertebral angles, more so on the left side. The external genitalia were not remarkable. The bones and joints were normal. Neurological examination showed a generalized hypoactivity of the deep tendon and superficial reflexes. There were no enlarged or tender lymph nodes. The skin was warm and dry, but showed no lesions. Rectal examination revealed a normal sized prostate; no abnormal masses were felt. The feces noted on the gloved finger following rectal examination were normal in color and consistency.

Admission laboratory work showed a 2-plus proteinuria, with 0 to 5 red blood cells and occasional white blood cells per high power field in the urine. The latter was dark reddish brown in color. There were 1 to 2 granular casts per high power field.

A reticulocyte count was 26.5 per cent and 34 nucleated red blood cells were present per 100 white blood cells. The total white cell count was 20,500 per cubic millimeter and a slight shift left in the differential count was noted; the red blood cell count was 1,500,000 per cubic millimeter, the hemoglobin was 5 grams. Color index was 1.01. Blood smear showed polychromasia and anisocytosis of the red blood cells. Serum bilirubin was 2.05, serum hemoglobin 190 milligrams per cent. Thymol turbidity: 3 units. The urine urobilinogen was 6.69 Ehrlich units in a 24-hour sample and test for urine urobilin was negative.

A repeated white blood cell count two days later disclosed 41,600 cells per cubic millimeter, with a quite definite regenerative blood picture, including myelocytes, metamyelocytes, and a number of normoblasts. The red blood cell count had fallen to 1,140,000 per cubic millimeter on the sixth hospital day. One transfusion had already been given, and another was given following the report of the latter count. The blood count began to rise gradually as the hemoglobinuria subsided. Other interesting laboratory data included a finding of less than one part per 1,000,000 of copper in 2,400 cubic centimeters of urine—which meant less than 2.4 milligrams in the 24-hour specimen. A cephelan flocculation test was 4 plus in 24 hours. Phenolsulfonphthalein excretion was markedly suppressed—a total of only 7 per cent in two hours. Non-protein nitrogen determination of the blood showed 44 milligrams per cent. (A cold agglutination test was positive in 1 in 256 dilution.)

Treatment in general was directed along the following lines: After the initial gastric lavages with removal of as much as possible of the unabsorbed copper sulfate from the stomach, potassium iodide was given through the tube. Morphine and parenteral fluids were used as the need for them arose. The patient tolerated milk by mouth on the fourth day of hospitalization, and at about the same time began to tolerate soft foods. Previous to that time, the patient had vomited almost everything he attempted to take by mouth, including water. He continued to vomit occasionally for the following two days. Dilute phosphoric acid, 1 cubic centimeter of the 10 per cent solution, was given by mouth three times daily from the fourth hospital day on. The patient had a mild reaction to a transfusion of whole blood on the fifth hospital day. By the ninth hospital day, it was no longer necessary to give parenteral fluids, and the patient was retaining a regular diet. Recovery from the illness seemed somewhat doubtful up through the fourth or fifth day; the patient ran a fever of 101 to 103 degrees, was many times rather irrational and restless, and urinary output was diminished. However, from the fifth day on, the urinary output increased, the temperature dropped, and the patient looked better day by day.

The patient was discharged at the end of the second week, at his own insistence. The hemoglobin at that time was 9.6 grams and the red blood cell count was 3,230,000 per cubic millimeter. The urine was normal in color, and the sediment contained no cellular elements or casts. A qualitative urinary albumin test was negative. The patient continued to run a daily afternoon elevation of temperature of 99 to 100 degrees up until the day of his discharge from the hospital. The temperature was normal the day he left, and his physical condition was apparently good except for the anemia. He failed to return for his appointed clinic visit two weeks later.

In summary, it may be said that this patient's hemolytic anemia is probably related to his copper salt ingestion. The amount ingested, in relation to the previously reported MLD, is rather startling, from the standpoint of the patient's fairly rapid recovery. This report lends credence to the possibility that copper may have been a factor in the anemias mentioned previously[10],[11]. It is unfortunate that a follow-up could not be obtained in the case under discussion.

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The Use and Abuse of the Electrocardiograph in Clinical Medicine*

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During the last two decades there has been an increasing tendency among physicians and clinicians to place more and more emphasis upon laboratory and mechanical diagnostic aids in the handling of their patients. All too often this has taken place at the expense of a searching history and a carefully done physical examination. This trend has certainly been true in the field of medicine dealing with cardiovascular diseases where the electrocardiograph has not only added tremendously to our facilities for research and clinical management, but has also been abused and misrepresented by physicians and patients alike largely because of a lack of understanding of its uses and limitations.

Perhaps a part of this misunderstanding has resulted from the rapid development of the science of electrocardiography as well as the publication of a vast amount of technical data often of a controversial nature. It is only in recent years that our medical schools have included courses in electrocardiography in their curriculum, and even today only a limited number of our physicians have a passing knowledge of the basic fundamentals of electrocardiographic interpretation. It is for this reason that this presentation will be used to summarize and re-emphasize a few of the important advantages as well as the limitations of the electrocardiograph as applied to clinical medicine.

Contrary to popular belief the electrocardiograph is not a new arrival in medical circles, for Willem Einthoven in 1901 introduced the first workable string galvanometer which could produce a graphic record of the action currents generated by the contractions of heart muscle. The existence of these electrical forces had actually been demonstrated fifty years earlier by Kolliker and Muller. Since Einthoven's first crude electrocardiograph was produced the instrument has undergone many changes and improvements and has graduated from a highly specialized cumbersome experimental research instrument to a reasonably priced portable machine which is available even to the general practitioner who is interested in heart work. It seems unfortunate that the development and distribution of electrocardiographic apparatus has outstripped the medical profession's ability to use properly this valuable tool.

The present day electrocardiograph is a precise and sensitive instrument which amplifies and records the electrical currents produced when the heart contracts and returns to its resting state between beats. The older string galvanometers recorded this electrical activity by allowing it to activate a metallized quartz string in a strong magnetic field and in turn making a photographic record of the movements of this string as it cast its shadow on sensitized photographic paper. A more recent innovation is the vacuum tube amplifier galvanometer in which the greatly amplified current potentials created by the heart are made to activate a marking stylus which makes its record on a paper strip. This latter machine has the advantage of producing an immediately available record and of being more simple to operate. Later developments have utilized the cathode ray oscilloscope which provides direct visualization of the electrical waves.

In spite of the many technical improvements and the chromium finery with which the present-day electrocardiograph has been provided, we must accept the fact that this apparatus still merely records variations in electrical currents from the heart and that the final interpretation and evaluation of this record must be made by the person who examines the patient. Burch in his "Primer of Electrocardiography" has very aptly pointed out that no cardiac study is complete without an electrocardiogram, but he further states that the electrocardiogram, x-ray examination and laboratory data provide supplementary but indispensable information secondary to the all-important thorough history and careful complete physical examination.

Here, therefore, with due apology to others who may have presented similar information, let me point out a few of the basic uses of the electrocardiograph and in turn call attention to some of the things that it should not be expected to do.

I. MANAGEMENT OF CORONARY ARTERY DISEASE.

Here the electrocardiograph finds one of its greatest fields of usefulness both in acute and chronic forms of the disease. Acute coronary artery closure with resulting ischemia or infarction will in most instances produce positive characteristic changes in the electrocardiogram at least within twenty-four to forty-eight hours. In the majority of cases the typical patterns can seldom be mimicked by other types of disease. In some instances, however, the diagnostic pattern may be masked by the co-existing picture of ventricular strain or bundle-branch block. Rarely the area of damage may be in a so-called "blind area," but most cardiologists feel that these can be eliminated by the use of serial tracings and multiple chest leads. The utilization of precordial leads and the advent of unipolar limb leads described by Wilson, Goldberger, and others have done much to furnish important information about the electrical activity of the heart in health and disease.

Electrocardiographic tracings made during convalescence from acute myocardial infarction will often be helpful in determining the rate of healing, but it must be remembered that the electrocardiogram is not always an accurate gauge of the severity of the infarction nor should clinical recovery from infarction be dictated entirely by the electrocardiogram.

The large group of persons with heart disease due to chronic insufficiency of the coronary circulation provides a fertile field for electrocardiographic exploration. Sometimes this instrument furnishes the only means of differentiating the symptoms of angina pectoris from those of other chest conditions. Here especially serial tracings provide invaluable diagnostic and prognostic information in handling cases of coronary insufficiency. The development of exercise tolerance, cold pressor and anoxemia tests have greatly expanded the usefulness of the electrocardiograph in this field of cardiology.

II. CONDUCTION DEFECTS AND CARDIAC MECHANISMS.

Even to the practiced ear of the expert cardiologist many hearts sound alike, but the electrocardiograph will demonstrate a wide variety of otherwise unrecognized rhythm and conduction disturbances. Some of these may be of a benign nature and some may have serious implications. The patient with palpitation may have only a benign functional sinus tachycardia or paroxysmal auricular tachycardia, while on the other hand the disturbance may be due to auricular fibrillation or ventricular tachycardia, both of which may imply more serious trouble. The electrocardiogram alone may point out the difference. Various types of heart block also may become apparent only through the electrocardiogram. Likewise, the anxious patient whose "skipping heart" leads him to fear an early death from heart disease can often be reassured that his impairment is due only to premature contractions when these can be graphically demonstrated for him by the electrocardiograph.

III. EFFECTS OF DRUGS AND PHYSICAL AGENTS.

When we find abnormalities in an electrocardiogram we must evaluate their clinical significance only with full knowledge of the types of drugs, toxic and physical agents to which the patient has been subjected. Digitalis especially may produce almost any type of change in the electrocardiogram so that at times the correct diagnosis may be difficult or impossible. It may at times become necessary to discontinue the drug for several weeks in order to detemine whether or not the changes in a given tracing are being produced by heart disease or by the drug. On the other hand the electrocardiogram may provide the first evidence of conversion of auricular fibrillation to normal rhythm thereby providing an early signal for reducing drug therapy. Approaching toxic levels of quinidine may also be indicated by the electrocardiogram when this drug is being employed for mechanism conversion.

Morphine and adrenergic drugs may alter the electrical activity of the heart as will body electrolyte disturbances which will be discussed later. Tobacco and chilling often affect the electrocardiogram, so the patient who smokes a cigarette or takes a cold drink of water just before having a tracing made should be allowed a rest period in order to eliminate these adverse effects.

IV. VENTRICULAR STRAIN

Pulmonary emphysema, pulmonary embolism, congenital defects, valvular abnormalities and systemic hypertension cannot be positively diagnosed by the electrocardiograph, but this instrument may strongly support a clinical diagnosis of these conditions by providing evidence of right or left or combined ventricular strain. It should not be forgotten, however, that the strain pattern may co-exist with or mask more serious myocardial disease.

V. INFLUENCE OF ELECTROLYTES.

Recent investigation has not only pointed out the importance of evaluating and correcting electrolyte disturbances in certain disease states, but it has also shown that the electrocardiogram may show more or less characteristic changes in the presence of excessive or deficient amounts of potassium and calcium in the circulating blood. The electrocardiograph, therefore, may provide a readily available simple means of detecting these electrolyte disruptions and of indicating their correction under therapy.

* * *

A few of the more important basic uses of the electrocardiograph in clinical medicine have been presented. Now let us look for a moment at some of the ways in which the electrocardiograph cannot or should not be used.

I. ELECTRICAL TREATMENTS.

The statement by Katz that the electrocardiograph should not be used merely to impress patients nor to lead them to believe that they are receiving an electrical treatment may seem rather trite, but there are a few physicians who have been guilty of using this device in just such a manner either through their own failure to appreciate its true value and usefulness or through their ignorance of even the simplest interpretation techniques. Inability to read electrocardiograms should never be an excuse for denying patients the additional benefit to be gained from them since interpretation services are available almost universally at a nominal fee.

II. ETIOLOGY OF HEART DISEASE.

Often the cardiologist is asked to determine what type of heart disease is indicated by the electrocardiogram. Unfortunately, the record does not contain this specific information. It is true that the cardiogram by showing a particular pattern of strain may be compatible with rheumatic valvular disease or some congenital defect, but the matter of etiology must be settled by the clinician who has the advantage of knowing the history and physical findings. Likewise, in the matter of coronary thrombosis the electrocardiographic record may show a pattern typical of myocardial infarction, but a statement of the etiology based on this finding alone is hardly justified.

In all cases the electrocardiogram is interpreted as being normal, suggestive of or definitely indicative of myocardial disease. A statement may be made that the tracing is compatible with a certain type of heart disease, but a specific etiology is never given.

III. PROGNOSTICATION.

Medical prognosis is a prediction of future course and outcome based upon clinical experience and clinical statistical data. The electrocardiogram may lend weight to such a prediction for any given case, but it can not alone foretell the future. All of us are familiar with patients who have shown extensive electrical disturbances in their electrocardiograms and yet made relatively uneventful recoveries. On the other hand the fact is well known that the patient with a normal electrocardiogram may die of a coronary thrombosis before he leaves the office.

The patient with occasional premature contractions has a relatively good outlook while the one with numerous multifocal premature beats may have a poor prognosis. Yet in neither case are we justified in using the electrocardiogram to predict longevity nor the state of future health. The electrocardiograph records the immediate electrical activity of heart muscle, but it has no ability for revealing what the next contraction pattern will be.

IV. VALVULAR DISEASE.

It is a matter of surprise to some physicians that a patient with a very loud heart murmur may have an entirely normal electrocardiogram. This points up the previously mentioned fact that an electrocardiogram without an adequate history and physical examination does not constitute an adequate examination of the heart. Valvular defects may only make themselves known in the electrocardiogram by the patterns of myocardial strain that they produce.

V. CARDIAC COMPENSATION AND RESERVE.

Congestive heart failure can better be diagnosed from observation of the patient than from the electrocardiogram. There are no specific findings in the tracing which will indicate the state of compensation or the ability of the heart to accomplish increased work. The physician who bases his opinion of the cardiac status entirely upon the electrocardiogram is placing himself in serious jeopardy.

SUMMARY

The principal uses of the electrocardiograph in clinical medicine have been pointed out and some of the limitations of this important diagnostic instrument have also been discussed. The electrocardiograph provides an objective record of heart action currents, but its value is directly proportional to the experience and training of the person who interprets the tracing. A searching history, a careful physical examination and a sensible correlation of laboratory, radiological and electrocardiographic findings are the essentials of any thorough examination of the heart and its related diseases.

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DISCUSSION

Dr. A. C. Guyton (Oxford)—I have greatly enjoyed Dr. Murphey's presentation which in reality has been a discussion of the logical use of electrocardiography in the general practice of medicine. At the present time I want to present to you a fragment of the extremes to which electrocardiography can go — namely, vectorcardiography and stereovectorcardiography with which we have experimented in our own laboratories.

It will be recalled that during each beat of the heart electrochemical impulses travel through the cardiac musculature, and, because the ventricular musculature represents by far the greater proportion of the heart, it is these electrochemical impulses passing through the ventricles which cause electrical currents responsible for the electrocardiogram. As these impulses begin in the septum, pass to the apex of the heart, and then back to the base of the heart, the flow of electrical currents around the heart depends upon which portions of the heart momentarily contain the traveling electrochemical impulses. Most of you are familiar with the manner in which the usual electrocardiograph records these electrical impulses from the heart.

In the vectorcardiograph the electrical impulses traveling through the heart are recorded on the screen of a cathode-ray oscilloscope. The spot of the cathode-ray oscilloscope normally is in the very center of the cathode-ray screen, but, when part of the heart contains an electrical impulse while the other part of the heart is still normal, the spot on the cathode-ray tube will move away from the center of the cathode-ray tube in the direction in which most of the current is flowing around the heart. The distance that the spot will move away from the center of the screen is proportional to the momentary intensity of the electrical currents. The vectorcardiograph records continuously the changes in intensity of current flowing around the heart and the direction of this current flow as is shown in the accompanying slide. The result is an ellipsoidal loop as recorded from the normal individual, though, when the flow of current in certain parts of the heart is blocked, the loop will be distorted. This is the means by which the vectorcardiogram can be used for the diagnosis of myocardial damage.

In our own laboratory and in several other laboratories throughout America stereovectorcardiographs have been constructed. Such an apparatus is illustrated diagrammatically in the second slide. The stereovectorcardiograph is a dual vectorcardiograph which records one vectorcardiogram horizontal to the plane of the supine body but leaning slightly to the right, while the other vectorcardiograph records a similar horizontal vectorcardiogram but this time leaning slightly to the left. These are arranged optically on the screen of the cathode-ray tube so that one eye sees one of these vectorcardiograms while the other eye sees the second vectorcardiogram and so that the two images are fused onto each other in the visual cortex. Because the planes of the two vectorcardiograms are slightly inclined to each other, the observer now observes the vectorcardiogram in three dimensions so that it is possible to follow the course of the electrical currents as they pass backward and forward in the heart as well as from side to side. Studies are now being made in several medical centers in America to determine precisely the limits of the normal stereovectorcardiogram and also to determine how this is affected in myocardial disease.

I have presented this description of the stereovectorcardiograph to show you the preciseness to which electrocardiography can be extended. However, I wish to say that the work with stereovectorcardiography falls mainly in the realm of experimentation, and I doubt very much that it will add significantly to the value of the electrocardiogram as a clinical tool. Indeed, I still believe that by far the greater number of heart conditions can be diagnosed from the three standard electrocardiographic leads, and I concur entirely with Dr. Murphey that a knowledge of some of the simple principles for the application of standard electrocardiography can be of tremendous benefit to the general practitioner.

ABSTRACT FROM PEDIATRIC LITERATURE

HARVEY F. GARRISON, M. D.

CORTICOTROPIN THERAPY IN NEPHROSIS. M. J. H. Frederikse. Maandschr. Kindergeneesk. 23: 349-355 (Oct.) 1955 (In Dutch) Leyden, Netherlands.

At the children's hospital with which the author is connected, 28 courses of corticotropin therapy were given to eight children (six boys and two girls) with nephrosis. The ages ranged between two and 11 years. Two of the children had been ill for a long time when treatment with corticotropin was begun, but in the six others corticotropin was given from the onset. A small amount of sodium in the diet of these children is advocated to prevent hyponatremia. Various corticotropin preparations were employed, and for this reason the doses varied, and some of the preparations were given in a single daily dose, whereas others were subdivided into several doses. Sixty per cent of the courses of corticotropin therapy proved very effective, 25 per cent proved moderately effective, and 15 per cent had poor results. The dosage per kilogram of body weight varied and the courses usually lasted from 8 to 10 days. The author gained the impression that low doses accounted for the therapeutic failures. Symptoms of the nephrosis generally recurred after cessation of treatment, but at the time when this report was prepared three children had been free from edema for over six months; they had normal erythrocyte sedimentation rates, and their urine was free from protein. The other five children are still receiving treatment.

COMMENT: My experience with the use of cortisone or metacortin in the treatment of nephrosis has been essentially the same as the authors have stated in this article. I commend it to the physicians of this state.

It's faith in ourselves that
Makes our faith in others strong;
He is not a full and rounded man
Who thinks the world all wrong.

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THAT WE MIGHT MOVE TOWARD A SOONER VICTORY

Polio is in retreat, but cancer we have with us and will have for some time yet. It can be whipped out and it must be, although the cancer problem has many angles. When the specific cause of a disease is known the victory is usually easy. There is not one but possibly several causes of cancer. If, for instance, it is finally established that cigarette smoking causes cancer of the lung, smokers could abstain from cigarettes, or they could be filtered in a way that would not cause the cancer. Keeping happy and physically fit no doubt helps to forefend cancer. At any rate, because cancer is the cruelest of diseases it is the greatest challenge to the medical profession and to the laity alike. Time, money, and research must be intensified. The patients who can be cured must be treated, the terminal cases must have comfort and ease. It is no time for our lay organization and the medical profession to be at cross purposes. In the cause of 12,000 cancer victims in Mississippi and a mutual dependence, we must work together.

MID-SOUTH ENDS EXCELLENT SESSION

The sixty-seventh session of the Mid-South Postgraduate Medical Assembly was held at the Peabody Hotel, Memphis, Tenn., last month, the American Academy of General Practice cooperating. The session was excellent. The papers were good in content and presented in a practical way. Many doctors were heard to say that this was the best session of the Mid-South for several years.

Dr. Joe Verser of Harrisburg, Ark., presided as the able president. At the close of the session Dr. L. W. Nabers of Morristown, Tenn., was installed as president for the coming year. Dr. C. W. Patterson of Rosedale, Miss., was selected as president-elect.

The Mid-South Assembly has been outstanding over the years. It renders a special service. In a four-day session it gives a fine review of the latest and best in the field of medicine and surgery. It has a broadening influence in that everyone in attendance has the opportunity to hear every paper presented. The city of Memphis is a medical center with a fine medical atmosphere. The Peabody Hotel lends itself well to this type of meeting. Its spacious lobby has served as an educational forum over the years. Exhibitors are essential to every medical meeting and are supporting the Mid-South. Let us stay with and for the Mid-South.

PAST-PRESIDENT'S DINNER

On Wednesday night, February 15, Dr. Joe Verser entertained the Past-Presidents Club with a sumptuous dinner. Dr. Joe is a very cordial and friendly host. Members present were: Drs. Frank Acree, W. H. Anderson, John G. Archer, J. L. Dunavant, A. G. Hudson, L. W. Long, L. H. Mc-

Daniels, L. S. Nease, V. B. Philpot, H. T. Smith, H. King Wade, R. B. Caldwell, Joe Verser, and incoming president, L. W. Nabers and C. W. Patterson, president-elect. Members absent: Drs. Hoyt Allen, F. L. Husbands, Fay H. Jones, and Julian Price.

At the meeting certificates of membership were delivered to Drs. L. S. Nease, R. B. Caldwell, and Joe Verser by the secretary.

Dr. L. W. Long, founder of the club, furnished the certificates.

Dr. A. G. Hudson of Memphis was the oldest member present from the standpoint of service. He served as president forty years ago.

The club discussed medical affairs in general and our duty to help to keep up the attendance at medical meetings each year.

Dr. L. H. McDaniels brought the club an inspirational address which he is delivering to the junior and senior classes of many of the medical schools in the country. He is making an appeal to the students to give attention to the individual as well as to the disease and do their part to build physical, mental, and spiritual assets. His address was a great treat.

STATE MEETING

Now we turn our attention to the Mississippi State Medical Association which will be held this year in the city of Jackson. Jackson is well located for the state medical association. It is a fine convention city. This year we are quite sure that the four-year medical school will give impetus to the medical meeting. Every doctor should attend the state meeting if at all possible. The scientific meeting will be good and there will be plenty of business for the association to attend to. Make your plans now to attend your state meeting in May 8, 9, 10.

NORTHEAST MEDICAL MEETS

The Northeast Mississippi Medical Society meets in Booneville, March 13. The scientific session will be in the auditorium at the Northeast Junior College, the banquet at the Student Center.

Dr. J. T. Davis of Corinth will preside as president with Dr. H. H. McClanahan as secretary.

Dr. Milton Adams of Memphis will be the guest essayist. His subject will be "Precancerous and Cancerous Lesions of the Skin."

Drs. W. E. Caldwell of Baldwyn and R. S. Caldwell of the Medical School of Jackson will report a case on fractures illustrated with a movie.

Dr. W. H. Anderson will present a paper on "Accidental Injuries and Deaths," which will be discussed by Dr. Felix J. Underwood of Jackson and Dr. R. B. Cunningham of Booneville, Miss.

The Auxiliary will meet with Mrs. W. H. Anderson at her home at two-thirty.

ORGANIZE STUDY COMMISSION

The Mississippi Society of Anesthesiologists has announced that an Anesthesia Study Commission has been organized. The Commission will investigate, study, and analyze case reports from Mississippi physicians concerning questionable conditions, complications, or deaths due to anesthesia. The announcement came from Dr. Curtis W. Caine, Jackson, president of the organization.

The announcement stated that the work of the Commission will be carried on impersonally in order that facts and professional opinion may be set forth in a completely impartial manner by reporting physicians. Dr. Caine asked that any case reports of interest, together with suitable clinical data, be submitted to the Commission in care of his office at Jackson.

KEEPING THE R. N.

The nursing problem in Mississippi does not seem to be improving. We have only nine schools of nursing in Mississippi. Only 203 nurses were accepted for entrance last year as compared with 323 in 1954. Our nursing schools at present seem to have a capacity of 802. Added facilities to these schools would enable them to train up to 1,207. It seems that we need to have schools to take care of about 1,500 students per year. It has been suggested that we add another five or six schools in the state after giving further aid to the ones we have. It seems to us that a reasonable distribution of nursing schools would help to solve the problem, what with our system of junior colleges to provide easily accessible academic training.

The three-year trained registered nurse is urgently needed. The strong trend is to eliminate her by college graduates in nursing and practical nurse technicians who have six months to one year in training. The R. N. has been the right arm of the profession for the last fifty years. Mississippi can do an excellent job in training the three-year nurse. She is needed just as are lawyers, doctors, teachers and preachers. Let us not give up our three-year nurses. Others of higher education are needed to be sure, but in the rank and file of nursing the R. N. is indispensable.

News and Comment

ACS ANNUAL MEETING

By arrangement between the MSMA Cancer Control committee and the American Cancer Society, the scientific program of the annual meeting, ACS, Mississippi division, will be sponsored by the state medical association. The entire period of the meeting will be March 21-22, and the scientific program will be presented on March 22.

The essayists who have accepted invitations to address the professional meeting are:

Ralph Jones, Jr., M.D., chairman of the Department of Medicine, University of Miami School of Medicine, whose topic is "Chemotherapy of Human Cancer—Present Status and Perspectives."

Daniel P. Slaughter, M.D., Chicago, "Debatable Tumors," and E. S. Judd, Jr., M.D., the Mayo Clinic, Rochester, Minn., whose essay will deal with cancer of the colon.

On the evening of March 21, Dr. Jones will address the non-professional leaders of the Division on "Recent Advances in Cancer Research."

Dr. Lamar Bailey, MSMA president, will address the luncheon session.

JOINS UM FACULTY

Dr. Floy Jack Moore has been named professor of psychiatry and chairman of the department of psychiatry at the University of Mississippi Medical Center in Jackson. He is currently assistant professor of psychiatry and psychology at Baylor University, Houston, Texas, and will assume his duties in Jackson on June 1.

ICS REGIONAL MEETING

The Southeastern Division Regional meeting of the International College of Surgeons will be held at the Read House, Chattanooga, Tenn., April 30 and May 1, 1956.

H. Randolph Unsworth, M.D., announces the opening of offices at 643 East Second Street, Pass Christian, Miss. Practice limited to diseases of the nervous system.

J. P. McLaurin, Jr., M.D., announces the opening of his offices at 613 South Lamar, Oxford, Mississippi, for the practice of obstetrics and gynecology.

LANCELOT LONGSTREET MINOR

Dr. Lancelot Longstreet Minor was born in Macon, Mississippi, May 12, 1876. His parents were Dr. Henry A. and Mary Ann Longstreet Dent Minor. His father served as president of the Mississippi State Medical Association in 1900-1901.

He was happily married to Louise Dupey Bragg of Arlington, Tennessee, April 13, 1909. Mrs. Minor still continues active in her church and club work and is highly esteemed and loved by all who know her

The L. L. Minors have one son and one daughter and four grandchildren. Dr. Minor loves and appreciates his children and grandchildren and is always happy to have them in his home.

Doctor Minor attended Lile University in Alabama and the Mississippi Agricultural and Mechanical College. He received his medical degree from the University of Tennessee in May, 1899, and has been very prominent in organized medicine, having the distinction of having served as an officer of the Mississippi State Medical Association longer than any other member ever has. He was chief of internes at the Mississippi State Hospital at Vicksburg in 1900 and later for two years, resident interné at General Hospital, Memphis, Tennessee.

He served as Councilor from the First Mississippi District for seven years, and completed his twenty-fourth year as Councilor of the Second District in May, 1955. He served as vice-president in 1923-1924 and 1930-1931, making a total of 33 years he has served to the very best of his ability at all times. He has been and is now secretary and editor of the DeSoto County Medical Society. This position he has held for thirty years.

Doctor Minor belongs to his local, state and national medical associations. He is a Methodist, 32nd degree Mason and has been local surgeon for the Illinois Central System for over 30 years. He served on the draft board in both World Wars. He has made excellent contributions to the *Mississippi Doctor* and other journals.

On October 23, 1949, in a beautiful family memorial church near his home, he received his membership in the Fifty-Year Club. Many people came from far and near to pay deserved tribute to the worth of Dr. Minor. A number of ministers and physicians further emphasized the esteem in which he is held. In January 1946 he received a Certificate of Honor and an emblem from his alma mater, the University of Tennessee, at a public meeting held in Memphis. It might be added that the good doctor is still actively engaged in his beloved profession.

Dr. Minor extends thanks and cordial good wishes to all whose lives have touched his in good will through the years. Dr. Minor has so often said: "As Tiny Tim so sagely observed, 'God bless us, everyone'."

Woman's Auxiliary

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DOCTOR'S DAY

The goal of 100 per cent of Doctor's Day by every county auxiliary is our aim this year.

Awards will be given as follows at the 1956 convention of the Woman's Auxiliary to the Southern Medical Association for the most original, outstanding and unique observance of Doctor's Day:

1. $10.00 award to the county auxiliary having more than 50 members.
2. $10.00 award to the county auxiliary having less than 50 members.
3. $5.00 award to the state auxiliary having best statewide observance.
4. The George D. Feldner Trophy—for the best observance regardless of size.
5. At our state convention the best observance and display will be prepared for exhibition at the next Woman's Auxiliary to the Southern Medical Convention.

DEADLINE: Scrapbooks, favors, place cards, identification tags, proclamations and any articles worthy of exhibition should accompany your reports on Doctor's Day observance, which must be sent *not later than April* 10, 1956, to Mrs. Harvey F. Garrison, Sr., 748 Gillespie St., Jackson, Miss., our councilor to SMA.

Mrs. N. C. House, Batesville, is our state chairman and she urges observance in two ways at least:

1. A red carnation for every doctor
2. Publicity in every paper and over every radio station.

Books are masters who instruct us without rods or ferules, without words or anger, without bread or money. If you approach them, they are not asleep; if you seek them, they do not hide; if you blunder, they do not scold; if you are ignorant, they do not laugh at you. —RICHARD DE BURY

What the Advanced Cancer Patient Should Be Told*

WILLIAM PERRIN NICHOLSON, JR., M.D.
Atlanta, Ga.

THIS PRESENTATION must of necessity constitute a philosophical rather than a scientific discussion; but after all the successful practice of medicine is an "art" rather than a "science." Art is defined as "the application of human skill and knowledge toward the accomplishment of a predetermined esthetic and frequently useful end." Whereas science is the "system of knowledge concerning some subject or group of subjects." The most scientific doctor can treat diseases in the latest and most approved and effective manner, but if he lacks the "art" of bringing into play the human element the disease may be cured but not the patient. He appreciates being a person and not just another "case"; that he means more to you than just a challenge to your professional skill. To establish such a relationship many, what might appear as useless, hours must be spent not only with the patient, also with members of the family to explain the condition, treatment being used and the anticipated results.

A good way in which this art may be cultivated is to read Charles Read's novel "Put Yourself In His Place," which deals with labor conditions in England around 1830 and through which runs a beautiful love story and in which one of the principal characters is an old family doctor to whom all the villagers go with their various problems, personal as well as medical. He always made it a practice before giving any advice to put himself in the other fellow's place.

Shouldn't we do likewise? If so, wouldn't we be more sympathetic? Wouldn't we be more patient in spending the many hours which otherwise might seem useless in explaining a patient's condition to him? It is not only WHAT we say to the patient but also HOW we say it. The mental anguish over an impending death may be greatly alleviated by a kind and sympathetic attitude on your part. "As a man thinketh, so is he," and if he, like one entering Dante's inferno, "abandons all hope," his physical progress will be retarded.

Knowing what we do about cancer wouldn't most of us, if we knew the true condition, rather put an end to our lives than to have our loved ones see us suffer? That brings up the question of euthanasia. If we have a pet which is suffering we think nothing of having it "put to sleep" in a painless manner. Mercy killing of a human being, however, can never be legalized until two things come about. First, that we have an honest and upright medical profession in which no black sheep might be bribed and, secondly, that there can be some way of determining that a patient really is hopeless.

I am sure that each of you has had an experience in which he has seen one or more patients whom he considered absolutely hopeless and yet that patient still be living. I have in mind a man on whom I was doing a subtotal gastrectomy for carcinoma. There were numerous enlarged lymph nodes which could not be removed. I told the family that what we had done was merely palliative and that he probably would not live a year. He always calls me on his anniversary and this year he told me that it had been twelve years since his operation. Had this man been told the truth as I saw it I feel sure that he would not have had the stamina to stage the comeback that he has. The pathological report showed that the lesion was malignant but he has gained some sixty pounds in weight, eats anything he wishes and is the picture of health.

No hard and fast rule can be laid down; every case must be handled differently. It appears, therefore, that many variables enter into the decision of what and how a patient should be told he is hopeless.

First let me say that I greatly dislike to use the word "cancer." The dictionary defines it as "a malignant and commonly fatal tumor." The thought of having one strikes fear into the heart of every layman. Little does he realize how much cancers vary in their malignancy. He does not know that some are easily curable by one of several means whereas others are hopeless from the time the diagnosis is made. Therefore I think it best not to use the word. Either tell him the diagnosis or merely hint that it is malignant. Even then many will misinterpret what you say. Just as many laymen report delightedly after a fall that "no bones were broken, only a 'fracture'," so they accept more gracefully a "malignancy" rather than a "cancer."

Usually if a responsible member of the family cannot be contacted and told the true condition, the patient should be told the truth. The age of the patient naturally is one of the first things to be considered. A young person, in whom the prognosis is usually worst, should not be told that he has a hopeless condition whereas one who is past his three score years and ten justifiably may be told more nearly what his actual condition is. If the patient is the breadwinner for the family or if the situation in the family is such that preparations have to be made to take care of those left behind then it might be advisable to tell the patient the truth. Otherwise, let a member of the family shoulder the responsibility. Many persons, especially men, will tell you that they are of such importance to their corporations that they must know whether or not they have a hopeless condition in order to put their financial affairs in shape. These persons should be told that anyone who is that important to their concern certainly has someone to look after his duties in case he is run over by an automobile and most certainly such a person has his financial affairs straight. It is not necessary therefore to tell him that his condition is hopeless, provided some responsible member of the family can be contacted. The better the economic or financial status the less justification there is for frankness.

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*Presented at the sixty-seventh annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 14-17, 1956.

Another incident that occurs to me is one in which I was requested to assist in an operation on an older colleague who had not done much upper abdominal work. As soon as the abdomen was opened numerous nodules were noted throughout the abdomen; on the omentum, on the peritoneum and intestines. One of these was excised and grossly found to contain a gelatinous substance. The facilities for a frozen section were not then available nor was a pathologist in the hospital. There was an induration in the region of the pylorus and both ovaries felt unusually hard. The abdomen was closed, believing that the patient had a gelatinous adenocarcinoma of the stomach with bilateral Krukenberg tumors of the ovaries. I suggested to my elder that he not tell the patient the true nature of her condition but he felt that he should be frank with his patients and insisted that he intended to tell her the truth. Fortunately before he told her he received the pathological report which showed that the lesion was not malignant but rather a paraffinoma or oleoma resulting from some mineral oil that had been previously used in the false belief that it would prevent the formation of adhesions. Had he told her what he thought was the true condition no amount of persuasion could later have convinced her that she did not have a cancer.

It is not easy to tell a person that he is dying. I rarely do so unless asked the point blank question or unless for medicological reasons a "dying statement" must be obtained. In such a case the law requires that he be apprised of his condition and that the statement be made in the presence of witnesses.

Some patients accept pending death very beautifully. A colleague recently made a social call on a friend of long standing whom he knew had a hopeless cancer. Shortly after he sat down she said, "I presume that you know I have cancer." This astonished him so that he gasped for breath and she said, "I know the truth; I know I am just waiting until my name is called but what worries me is thinking of how many people are in the same condition I am in and do not have sufficient financial means to make their last days as comfortable as mine. I have absolutely everything I could ask for." That was a true Christian who was prepared to die but not all of us can face death so tranquilly.

Another patient who was ten years post-operative for a carcinoma of the breast developed a primary bronchiogenic carcinoma. A pneumonectomy gave her many months of comfort and when she became hopeless her husband insisted she wanted to know her true condition. She, too, accepted the truth tranquilly and thanked each of her several doctors for what they had done for her and went to her heavenly reward with no discernible resentment. On the other hand most patients realize their condition, but to shield their families put up a bold front. I have in mind a very dear and close friend and surgeon who was dying with pulmonary carcinoma but who would try to prove to me that what he had could not be a malignancy. I am thoroughly convinced he realized his true condition but wanted to encourage his wife and friends.

Religion is another factor. If a person is of a belief that confession and absolution are essential to their entrance into the Pearly Gates, they should be told. On the other hand, many faiths teach their people to live each day as though it was their last. In the Litany the verse beseeching deliverance "from battle, murder and *sudden death,*" does not refer to a cardiac death but rather an "unprepared" one.

Race is another one of the variables. This perhaps can be bracketed with temperament because it is the high-strung, highly-emotional races that go to pieces so rapidly when told of a hopeless condition.

It was my good fortune to hear two lectures on "Medical Ethics" by the late Doctor Abraham

Jacobi, then eighty-six years of age and recognized as the "dean" of the medical profession in New York City. Some things that he told us will never escape my memory. One of these was that he was frequently asked if he considered it a sin to lie to a patient about his condition and his response to that was "to conceal a dangerous truth, is not to lie." Whenever the knowledge that their condition is far advanced and hopeless is a dangerous truth, a patient should not be told of this condition. I have had some rather humorous situations arise about this. One lady who had a far advanced carcinoma of the breast was referred to me and after examining her she asked me if she had a "cancer." My reply was that she did not have a "cancer" but had a "carcinoma" and that after having an x-ray of her chest made she would have an operation and x-ray treatments. She was well pleased. I went in the next room and while she was dressing told her husband of the true circumstances. About a half hour later he came in with the x-ray report and said, "Doctor, ma wif and I are very close as one mon and wif and we never keep anything from each other, and I told her that you told me that she had a cancer." In spite of this she had a medical mastectomy and died two years later with cerebral, hepatic and other metastases.

On another occasion I had spent some ten to fifteen minutes with a clinic patient trying to convince her that what she had was an abscess and not a recurrence of her cancer. She went in and told the resident in glee that I had told her that she had no cancer and he said, "Why do you think you are coming down here if you don't have cancer; of course you have it." She went downhill very rapidly.

A frank statement frequently has to be made to justify palliative therapy and even then many will seek the ministrations of anyone who will hold out any hope no matter how false, even to Indian herb "doctors" or other quacks.

Generally speaking I believe that the true condition of a patient should be shielded from them provided some responsible member of the family can be told what that condition is. There are exceptions as above noted and there are certain people who will tell you definitely that they want to know what their condition is and whether or not they can recover. As hard as it is to do it, I tell those patients the truth but try to avoid taking away the little hope that they have and try to keep them buoyed up and in as good spirits as possible until the end.

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The Role of Alterations of Hormonal Balance in the Management of Breast Cancer*

ALBERT SEGALOFF, M.D.
DOUGLAS L. GORDON, M.D.
New Orleans, La.

Alterations of hormonal balance serve only for the palliation of advanced breast cancer. If a single patient has been cured by hormonal means, we are not aware of it.

There is no doubt that the normal development and function of the mammary gland is dependent upon ovarian secretion. Therefore, it appears quite logical that ablation of the endocrine function of the ovary should be attempted with the hope of producing regression in the growth rate of mammary cancer. Although it was very early reported that such interference in the hormonal balance had a favorable effect on the course of advanced mammary cancer[3], the popularity of this procedure waxed and waned. Recently studies have been carried out in our laboratory to evaluate the role of castration in the management of advanced mammary cancer[12]. The good percentage and long duration of favorable results have been impressive. Similar results have led others to such extremes as to recommend castration in patients long after the menopause[4].

It appears that of all the methods of altering the hormonal milieu, surgical castration is the most effective in the pre-menopausal woman. Radiation destruction of the ovary is about as effective as oophorectomy, but there are two reasons why we think that surgical castration is preferable. It is impossible with any given dose of radiation to be sure of sufficient destruction of the ovaries to assure prevention of subsequent pregnancy and hormone production. In view of the disastrous effects of pregnancy on advanced mammary cancer this is a grave disadvantage to roentgen castration. Of equal importance is the fact that there is no universal agreement that would serve as an adequate guide for the selection of the amount of radiation which should be used in a given patient.

Removal or destruction of the ovaries is accompanied by a series of readily apparent alterations in hormonal balance. There is a spectacular rise in the urinary excretion of gonadotrophic hormones of both the follicle stimulating and leuteinizing variety[12]. It is our contention, which is receiving more and more support with passage of time, that these two gonadotropins follow in a parallel fashion because they are represented by a single molecular entity with both follicle stimulating and leuteinizing properties[11]. Soon after castration there is usually a decrease in the urinary excretion of estrogen which later increases and is thought to originate from the adrenal cortex. Despite these changes in urinary estrogen excretion there are the evidences of removal of estrogenic hormone such as the atrophy of the vaginal mucosa, breast atrophy, changes in the skin and the usual whole train of menopausal symptoms. These are accompanied by the continued high excretion of gonad stimulating hormone.

The favorable effects from castration in pre-menopausal women are seen in both soft tissue and osseous metastatic lesions. No greater predilection or response or lack of response seems to exist for either type of lesion.

The parallel situation of castration for cancer of the male breast is also seen[3]. Cancer of the male mammary gland is considerably less common than in the female but castration leads to equally dramatic results in an equivalently high or even higher percentage of patients. The alterations in hormonal balance are essentially the same as those seen in the female.

Despite the favorable effects from castration in advanced breast cancer, there is no evidence that castration will prevent or delay the appearance of metastases. We feel that it is particularly important to emphasize the fact that women should not be castrated solely because they are found to have axillary node metastases at the time of initial mastectomy. This unwarranted castration not only does not delay the onset of metastases but would also lead to the castration of women who have actually been cured by their surgery. In addition to this, we have deprived them of their greatest chance for response to later castration should they actually have metastatic spread from their breast cancer.

The availability of cheap synthetic estrogens naturally led to their widespread trial in many diseases. Despite the fact that they would seem contraindicated in advanced breast cancer, they were tried and produced some very dramatic regressions of soft tissue lesions. The widespread application of this therapy made it obvious that it worked successfully only in women well past menopause[3]. Further work showed that similar favorable effects can be obtained with any potent estrogenic material. It is of much interest that estrogen not only fails to have a favorable effect in premenopausal women, but often has the opposite effect in them. That is to say, estrogen frequently accelerates the rate of tumor growth in premenopausal women. It is of great interest that the administration of estrogenic hormone has exactly the opposite effect of castration on the hormonal balance and it works only in those patients who have the characteristic hormonal pattern of castration, either natural or artificial prior to the onset of therapy[9]. The estrogen produces renewed growth of the mammary gland, estrogenic changes in the uterus and vagina, a lowering of the urinary gonadotrophic hormones and an increase in both the circulating and urinary estrogen. Here again in suitable patients, the effects of administration of estrogenic hormone when favorable can be very dramatic and of fair duration.

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*From the Endocrine Research Laboratory of the Alton Ochsner Medical Foundation and the Department of Medicine of Tulane University School of Medicine, New Orleans, La.

In patients with advanced breast cancer the use of testosterone led to favorable results in from 20 to 25 per cent of patients. Our experience and that of others has been that the estrogens tend to have their greatest favorable effect, even in suitable patients, on soft tissue lesions and rarely on osseous lesions; in contrast the androgens seem to act most favorably on osseous metastases but may also benefit soft tissue lesions[5]. It would appear that the older patients have a greater tendency for favorable response to androgen than do younger patients. In general it would seem that the older the patient with advanced breast cancer the greater the likelihood for favorable response to any hormonal agent.

The hormonal changes subsequent to the administration of testosterone propionate are of great interest. It seems to us that it has been amply demonstrated that testosterone is converted to active estrogens which are subsequently excreted in the urine. This finding alone militates against the theory of estrogen dependency of breast cancer. Testosterone propionate also suppresses the urinary excretion of both gonadotropins and substantially raises the 17-ketosteroid excretion in the urine[5]. In general the patients are virilized by the use of adequate testosterone propionate therapy with deepening of the voice, occurrence of acne, masculine distribution of musculature and the development, of course, of excessive facial and body hair. The most distressing side effect in the administration of large amounts of androgen to women is a great increase in libido, often great enough to interfere with use of this hormonal therapy over long periods of time. These complications have led to the search for a so-called nonandrogenic androgen which would not have these side effects yet retain the good effect on advanced breast cancer. The search has been unsuccessful to date.

Another distressing complication of therapy has been the development of symptomatic hypercalcemia during the early phase of ossification of osteolytic lesions. This usually occurs in bed-ridden patients and can often be minimized by ambulation of the patient as rapidly as possible, if the hypercalcemia cannot be prevented or corrected, this necessitates the discontinuance of testosterone therapy.

Although cortisone alone does not produce objective regression of the metastatic breast cancer[8], the patient often feels extremely well despite advanced disease. Cortisone has a very favorable effect on the symptomatic hypercalcemia. Two hundred mg. of cortisone daily will usually reduce the blood calcium and stop the symptoms from the hypercalcemia.

On testosterone therapy many patients also feel well, having a sort of steroid euphoria, even though they may not have objective regression of their advanced metastatic disease. The bone marrow is also often greatly stimulated, indeed, the increase in marrow activity is often reflected as polycythemia[2]. One of the puzzling effects of therapy of patients with osteolytic lesions is the fact that lesions may heal at the same time that new lesions disappear. This mixed picture would lead one to the belief that the cancer itself differs from site to site in its reactivity.

There are three androgenic steroids of approximately the same degree of activity as testosterone propionate. Androstanolone which is the adrostane analogue of testosterone with the double bond saturated has, as nearly as we can tell, the same effects as testosterone[10]. It is as virilizing as testosterone and produces the same changes in gonadotropins and ketosteroids. It is also approximately as effective as testosterone against advanced breast cancer. 17-Methyltestosterone is also as effective as the two previously mentioned androgens; however, this differs from the others in that there is no change in the excretion of 17-ketosteroids when it is administered[7]. It differs further in that it is effective orally. However, this added advantage of oral effectiveness is counter-balanced by the fact that it does have a tendency to produce jaundice which will usually clear on the discontinuation of medication. Methyltestosterone also has the interesting property of producing a substantial increase in the urinary excretion of creatin.

All the other androgens which have been reported upon are substantially less effective than any of the three already mentioned agents and should not be tried except as a possible last resort. It is our considered opinion that the testing of new agents of this nature should be done only in the larger medical centers with greater numbers of patients available and adequate facilities for study.

Adrenalectomy has also been employed in the management of advanced breast cancer. The present era of readily available cortical hormone has made the maintenance of these patients after surgery a somewhat easier problem but not one which is devoid of danger or difficulty. While dramatic results are sometimes seen they occur in approximately the same percentage of cases as one sees with testosterone propionate[1]. It is our distinct feeling that this procedure should be reserved entirely for patients who have either failed to respond to properly administered androgen or estrogen therapy or in proper instances to castration. However, it must be recalled that there is no turning back once the patient's adrenals are out, and that they must be managed from then until death. Essentially the same statements can be made for hypophysectomy except that here the operation is an extremely difficult one and there is a very reasonable doubt as to how successful one can be in the complete removal of the pituitary in man. It is also our opinion, based on quite limited experience that the management of some of the post-operative problems, particularly diabetes insipidus, may be very unpleasant for the patient. Hypophysectomy is a procedure of very modest effectiveness in comparison to its magnitude and expense. At the present time it is our opinion that hypophysectomy should also be carried out only in the larger centers where adequate evaluation facilities are available.

The C-21 steroids appear to be of very limited effectiveness, being only as effective as the less active androgens such as methyl-androstenediol[6] in producing objective regression in an occasional patient. There has been some difference of opinion as to the effectiveness of the production of so-called medical adrenalectomy with cortisone. It has been our finding that although the patients invariably feel better and occasionally show the mixed picture of some lesions responding and others progressing as mentioned above, we have not yet seen a patient treated with cortisone whom we would consider as showing objective regression[8].

The finding that steroids other than testosterone and the estrogens and that procedures such as adrenalectomy and hypophysectomy can produce objective regression in advanced breast cancer makes one feel optimistic that the future may bring more effective agents for the therapy of advanced breast cancer. It should also be remembered that rapid strides are being made in the field of chemotherapy and that chemotherapeutic agents can be effectively applied to advanced breast cancer.

Finally, we feel that there is no evidence which would favor applying more than one hormonal procedure at a time. Each agent should be given in adequate dosage and at least six to eight weeks allowed before deciding that it will or will not work. Hormonal procedures should only be applied to patients with advancing disease, and when started should be continued until there is unequivocal evidence of further progression of the disease. When any therapy is discontinued one should wait for further evidence of the march of the disease before instituting new therapy, since we frequently see an unusual reaction of regression of metastases after an agent is discontinued. This is most frequently seen where there has been a favorable response to the agent.

We recommend that premenopausal women with advancing metastases from a breast cancer be castrated. When there is again progression of the disease they should be given androgen therapy until it is no longer effective. If facilities and skills are available adrenalectomy or hypophysectomy can then be considered; otherwise attention should be turned to the non-hormonal chemotherapeutic agents.

Post-menopausal women with soft tissue lesions should first be treated with a potent estrogen followed after escape, or failure, by a potent androgen. However, if skeletal lesions are the predominant factor this order of therapy should be reversed. They can be followed by adrenal or hypophyseal surgery or nonhormonal chemotherapeutic agents as for the pre-menopausal patient.

For both of these groups of patients we feel that ACTH or cortical hormones may be employed to advantage in the terminal phases. At this stage these agents may be employed to keep the patient from being a narcotic vegetable for her last days. They should not be started too early, as their euphorogenic effects wear off.

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The Value of the Ballistocardiograph in the Diagnosis of the Prodromal Stage of Acute Myocardial Infarction: Case Report*

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WITH THE gradually increasing interest in the clinical application of ballistocardiography during the past ten years, there have appeared divergent opinions regarding the diagnostic value and implications of this method. However, few would disagree with the statement of Starr and Wood[1] that "the most marked variations from the normal pattern to be found in clinical ballistocardiography are those manifested by individuals suffering from myocardial infarction and angina pectoris." It would follow that ballistic tracings would be a desirable adjunct to include in attempts to recognize the frequently elusive "prodromal" stage of acute myocardial infarction, especially since it is well known that this phase may be accompanied by no abnormalities in the studies usually employed in such cases, including the "stress" tests[2]. Likewise, it has been estimated that negative responses to such provocative tests as the anoxemia test (inhalation of 10 per cent oxygen), the single and double Master two-step test, or variations of the latter, may be found in as high as 50 per cent of patients with known coronary atherosclerosis[3].

The following case is being presented to illustrate the value of the ballistocardiograph in a patient hospitalized for investigation of chest pain which was not typical of the anginal syndrome or acute myocardial infarction. The ballistic tracings were obtained by means of a "high frequency" Starr-type table and recorded simultaneously with electrocardiograms on a direct-writing two-channel apparatus, previously described[4].

CASE REPORT

D. L. P., a 44-year-old white male mechanic, was admitted to the local Veterans Administration Hospital on 11-7-54 because of precordial and left arm pain. He was well until two weeks prior to admission when he became unduly exhausted while tending livestock. That night, while in a drive-in theater, he developed precordial pain with radiation to the left shoulder and arm. He got out of the car and walked around with disappearance of the pain within three or four minutes. Until the time of admission he experienced one to several such attacks daily, lasting four to 20 minutes. They occurred at any time, coming on either at rest or with exercise. Past history was negative for hypertension, syphilis and rheumatic fever.

Physical examination revealed the blood pressure

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*From the Medical Service of the Veterans Administration Hospital, Jackson, Miss.

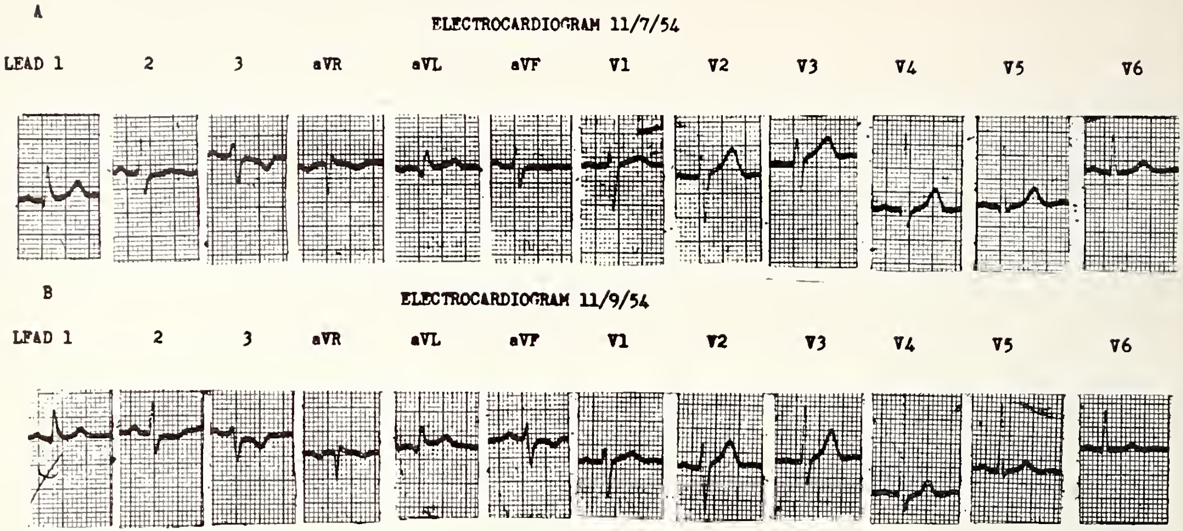


FIGURE I

A. Electrocardiogram of patient D. L. P. showing Q waves and slight ST segment elevation in leads I and AVL. The T waves are diminished in amplitude in Lead II, inverted in lead AVF and coved and inverted in Lead III. The ST segments are slightly depressed in these same leads.

B. Electrocardiogram of the same patient two days later. With the exception of the T waves becoming more diphasic in Lead II and more inverted in Lead AVF, the tracing is similar to the initial one (A).

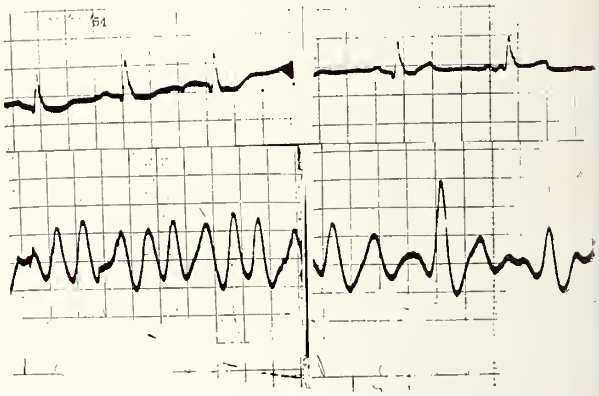


FIGURE II

Simultaneously recorded ballistocardiogram and standard limb lead 1 of the electrocardiogram. A shows chaotic ballistic complexes during episode of initially unreported chest pain. B demonstrated completely normal ballistic record three minutes after relief of pain by nitroglycerine, 0.4 milligrams, sublingually.

to be 120/80, pulse rate 80 per minute, temperature 98.0 and weight 160 lbs. Physical findings were normal.

Laboratory findings revealed a white blood count of 8800 with a normal differential and hemoglobin of 15 grams. Serological test for syphilis was negative. X-ray of the chest did not show any pathology. Serum cholesterol 305 mg. per cent. Electrocardiogram (Fig. 1A) was reported as being within the limits of normal.

The clinical impression on admission to the hospital was coronary artery disease. The patient continued to have two or three attacks of chest pain daily, coming on at rest and lasting 10 to 15 minutes. The location of the pain varied from the left scapula to the left hand and precordium. Nitroglycerine (0.4 milligrams sublingually) was administered without significant effect on the chest pain except for possible relief of two such attacks. The electrocardiograph was repeated on 11-9-54 (Fig. 1B). It demonstrates elevation of the ST segments in leads I and AVL; depression of the ST segments in leads III and AVF with inversion of the T waves in the latter two leads. These changes were not considered to be normal but were nevertheless not thought to be diagnostic of myocardial disease. On 11-16-54 the electrocardiogram (not shown) was done during an attack of chest pain. There was no significant change from the previous tracings. Various causes for the pain, other than coronary artery disease, were then considered. A gastro-intestinal series and x-ray examination of the cervical spine failed to reveal any abnormalities. Ballistocardiographic studies were performed on 11-19-54 (Figs. 2A and B; 3A, B, C and D). During the initial tracing (Fig. 2A) the patient complained of severe chest pain and 0.4 milligrams of nitroglycerine was administered sublingually. Three minutes later the pain disappeared and normal ballistic complexes appeared (Fig. 2B). Figure 3C shows the record taken a few minutes later, when the pain returned. These findings, along with the clinical picture, prompted the diagnosis of coronary artery disease with probably impending infarction. The patient was placed on Dicumarol^R on 11-19-54. The attacks gradually subsided and he became pain-free on 12-6-54. The Dicumarol^R was discontinued on 12-14-54. He remained asymptomatic until 12-21-54 (approximately 60 days after the initial onset of pain) when he developed severe anterior chest pain, dyspnea and orthopnea, accompanied by electrocardiographic changes (Fig. 4A and B) diagnostic of acute postero-lateral myocardial infarction. Dicumarol^R therapy was re-instituted and conventional treatment for heart failure prescribed. An uneventful recovery ensued.

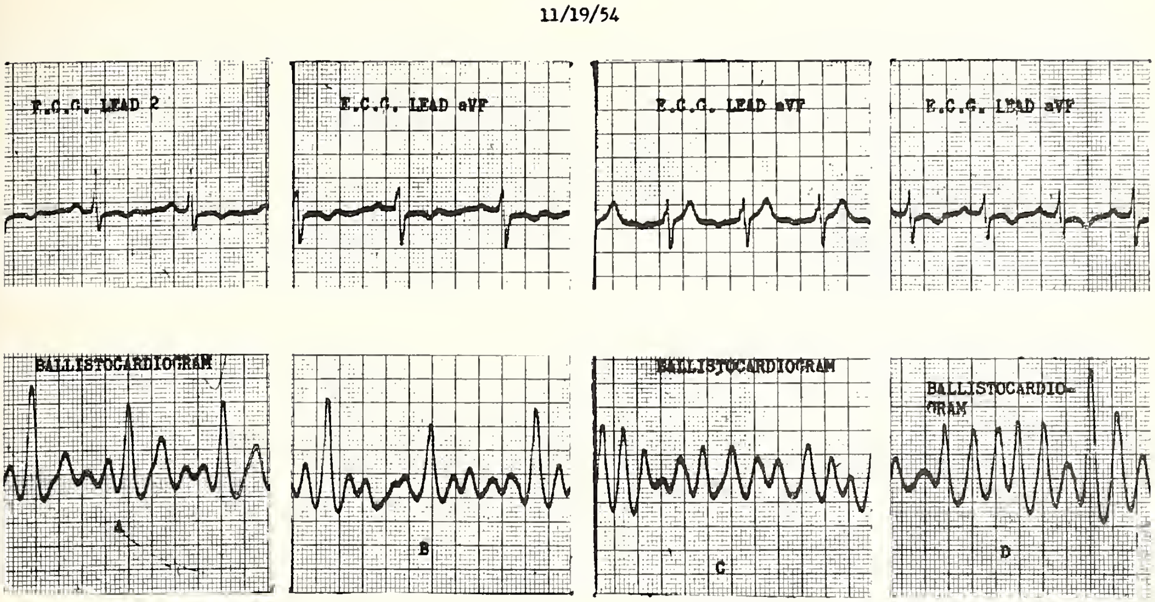
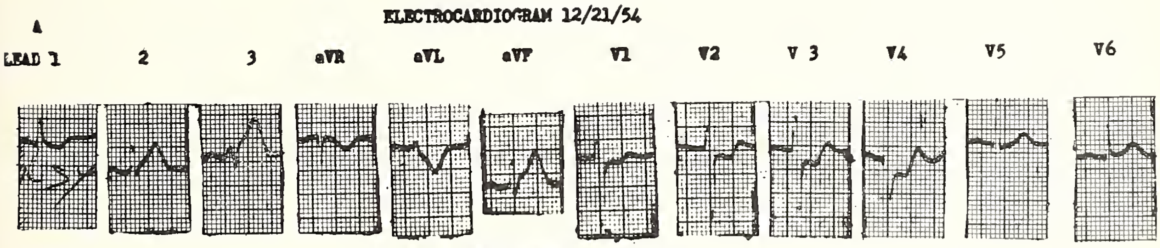

11/19/54
E.C.G. LEAD 2
E.C.G. LEAD aVF
E.C.G. LEAD aVF
E.C.G. LEAD aVF
BALLISTOCARDIOGRAM
BALLISTOCARDIOGRAM
BALLISTOCARDIOGRAM
A
B
C
D

FIGURE III

Strips A and B were recorded while the patient was free of chest pain and lying quietly on the table. It will be noted that the ST segments are depressed and the T waves inverted in leads 2 and AVF of the electrocardiogram. The ballistic complexes are of good amplitude and easily identifiable.

Strip C was recorded during the height of an attack of precordial pain which had occurred shortly after the patient had assumed the sitting position. The T waves in lead AVF of the electrocardiogram are now upright and the ST segments no longer depressed. The ballistic complexes have become diminished in amplitude, difficult to identify and generally chaotic. The H waves have increased in height and the J waves diminished, constituting the "early M" pattern.

Strip D was recorded three minutes after 0.4 milligrams nitroglycerine was administered sublingually. The chest pain had subsided. The ST segments are again depressed and the T waves inverted in lead AVF of the electrocardiogram. Although the ballistocardiogram is still grossly abnormal, a definite trend toward normalization is seen.


A
ELECTROCARDIOGRAM 12/21/54
LEAD 1
2
3
aVR
aVL
aVF
V1
V2
V 3
V4
V5
V6

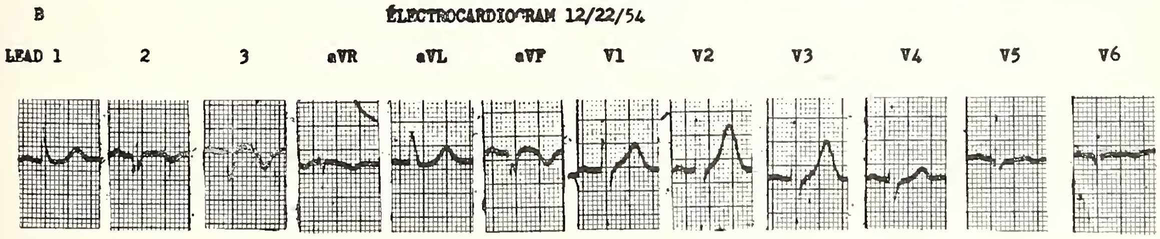

B
ELECTROCARDIOGRAM 12/22/54
LEAD 1
2
3
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6

FIGURE IV

FIGURE IV

A. Electrocardiogram of patient D. L. P. showing an active myocardial process involving the posterolateral wall.

B. Electrocardiogram of the same patient 24 hours later, showing typical changes of an active posterolateral myocardial infarction.

COMMENT

The fact that patients with coronary artery disease may present no abnormalities or equivocal findings in such routine studies as physical examination, cardiac fluoroscopy, x-ray of the chest and 12-lead resting electrocardiogram[2,3,5,6,7] is well illustrated by this patient. It might be suggested that the initial electrocardiogram (Fig. 1A) which was interpreted as being normal actually was equivocal. However, even if it were considered to be abnormal, the changes were not pathognomonic of myocardial disease. The second electrocardiogram (Fig. 1B) offered little more with respect to a definite diagnosis.

The chaotic ballistocardiogram (Fig. 2A) during the attack of chest pain was the first documented evidence of coronary artery disease. The return of normal complexes following relief of the pain by nitroglycerine (Fig. 2B) was striking. Neither smoking nor exercise produced chest pain but did result in deterioration of the ballistic complexes similar to those which occurred during a spontaneous attack. As pointed out by Davis and co-workers[3], such ballistocardiographic findings furnish additional support for a diagnosis of coronary artery disease. The recurrence of chest pain while this man was on the ballistocardiographic table was interesting. In view of the normal ballistic complexes immediately preceding this second bout of pain (Fig. 3A and B) the sudden deterioration during the pain was dramatic (Fig. 3C and D). The characteristic ballistic changes found in coronary artery disease and myocardial infarction[1,8,12,14] will be noted in Figures 2A, 3C and D.

The quality, location and radiation of pain in this patient actually is compatible with either angina pectoris or coronary occlusion. The appearance of chest discomfort on exercise suggests angina, while the occurrence of pain at rest would favor myocardial infarction. However, the pain was atypical to such an extent that for a while causes for it other than coronary disease were considered.

It was then that the pain pattern and the ballistocardiographic changes led us to consider a derangement intermediate between angina pectoris and acute myocardial infarction and prompted a diagnosis of coronary artery disease with "coronary failure"[13]. Accordingly, bed rest and anticoagulants were prescribed in the hope that acute myocardial infarction could be averted. It will be noted that during the first 17 days on this program of treatment symptomatic improvement was attained. He remained asymptomatic for seven days after discontinuance of anticoagulant therapy. The development of acute myocardial infarction some 60 days after the initial onset of pain and one week after anticoagulants were stopped (Fig. 4A and B) leads to speculation concerning whether or not anticoagulant therapy should have been continued on a long-term basis[15].

SUMMARY

The role of ballistocardiography in the early detection of the prodromal stage of myocardial infarction has been discussed. It is not intended to imply that without such an instrument as the ballistocardiograph the diagnosis of this entity cannot be made, nor that this instrument prognosticates the development of myocardial infarction; however, we firmly believe that its employment is helpful in determining the presence of coronary artery disease earlier in some cases than is possible with accepted conventional methods. Our experience with the case herein reported supports the suggested use of ballistocardiography as a diagnostic adjunct in similar cases.

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Cancer: Questions Frequently Asked by the Patient*

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IN SELECTING a subject for discussion today my first thought was the questions which are presented by the patient or the family of the patient, who has been found to have or is suspected of having cancer.

The questions which the patient asks his physician are often very elementary, as: Is cancer contagious? Is cancer more prevalent today or do we just hear more about it? Is it possible to cure cancer? Is the patient too old for an operation?

CONTAGION AND CANCER

In the human being there is no evidence of the contagion of cancer. It is true that a class of tumors does occur in animals and is communicable from animal ot animal. This is the case of the Roux chicken sarcoma (a malignant connective tissue tumor) but no such tumor has been found in man. It is a characteristic feature of malignant tumors that small groups of cells become detached from the parent tumor and are transported by the blood stream or the lymphatic vessels to distant parts of the body of the patient where satellite growths take place. This is the process known as metastasis. But in man, tumors can not be transplanted from one individual to another. No surgeon or nurse has ever been known to become so "infected."

ROLE OF HEREDITY

Tumors of many different kinds occur in all species of animals and practically every type of tumor found in man also occurs in the mouse.

One of the first observations made on cancerous growths in laboratory animals was that they occurred more frequently in certain cages or groups of animals. The inheritance of tumors is best studied in animals which have been inbred for many generations. In such animals the susceptibility to a particular type of tumor becomes so concentrated in a particular strain of animals that a very large percentage of them (up to 95 per cent) will die of that tumor. At the present about 70 strains of homozygous mice are available to research laboratories for experimental work. Among those are: 1) a strain in which a high percentage of breast tumors develop, 2) a strain developing a high percentage of lung tumors, 3) a strain developing liver tumors (hepatomas) and 4) a tumor-resistant strain.

Definite scientific information involving the hereditary factors of tumors in man is very meager, because of the heterogeneous nature of the species. A recent symposium on genetics of cancer indicated that a number of neoplasms and precancerous conditions, particularly xeroderma, pigmentosum, neuroblastoma of the retina, and multiple polyposis of the colon, appear to have a tiple polyposis of the colon, appear to present the breast, uterus and rectum, and leukemia may show hereditary tendencies[1].

However, there is proved evidence that there are hereditary factors in the cause of cancer in man, but it is thought that this influence only predisposes the individual to cancer and the actual malignant transformation of cells occurs at a later time when a carcinogenic stimulus effects the change from normal cells into cancer cells. There are some rather notorious illustrations which support the idea of an hereditary factor: 1) The Middlesex Hospital report of a woman and five daughters who had cancer of the left breast. 2) Sir A. Pearce Gould had a patient with cancer of the left breast. This patient's mother, two of the mother's sisters and two of the mother's cousins died of cancer. 3) In the Powers case, a man had cancer of the right breast. He had two brothers, one of whom died of cancer of the throat and the other died of cancer of the axilla. And he had eight sisters, four of whom had died of cancer of the breast and two living sisters were suffering with cancer of the breast at the time of the report. 4) The Emperor Napoleon, his father, his brother Lucien and two sisters died of cancer of the stomach.

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*Presented before a joint meeting of District III and District IV, Mississippi Division, ACS, Oxford, Miss., February 29, 1956.

ENVIRONMENTAL FACTORS

The development of cancer in man and animals has been shown to be influenced by various environmental factors, acting both internally and externally. Internally, the hormones (or lack of them), the diet and nutritional status play a decisive role in the production of experimental cancer in laboratory animals. Externally, exposure to carcinogenic agents may result in cancer, as may be demonstrated experimentally in rabbits by painting the ear with tar or by the application (or injection) of benzipyrene, methylcholanthrene or other carcinogenic agents.

Clinically in man the influence of environmental factors is best illustrated by:

The observation of Percival Pott, in 1775, of the frequent occurrence of scrotal carcinoma in chimney sweeps (exposure to soot).

The frequent occurrence of cancer of the bladder in aniline dye workers.

The high incidence of skin cancer in farmers and sailors (exposure to sunlight).

Radiation cancer. The large number of skin carcinomas, especially of the fingers, which developed in the pioneer workers with x-rays and radium.

The prevalence of lung cancer in certain miners, metal workers and in those working in spinning mills and cigar factories (dusty trades).

The frequent association of cancer of the lip in pipe smokers.

The frequent association of chronic irritation and the subsequent development of cancer, as in chronic ulcers, discharging sinus tracts and chronic cervicitis.

The high incidence of cancer of the urinary bladder and infestations with bilharzia.

The association of infestation with liver flukes and carcinoma of the liver.

INCIDENCE OF CANCER

Cancer is one of the major causes of death throughout the world and in the United States is second only to heart disease. In 1920 there were 73,000 deaths reported as being caused by cancer. In 1948 there were approximately 200,000 deaths from cancer in the United States and if the present trend continues it is estimated that there will be in this country 400,000 deaths from cancer in the year 2000.

Admittedly death statistics are not very accurate because the diagnosis on the death certificate is usually based on clinical assumption while in only relatively few instances is it based on confirmed pathological findings. It has been estimated that one-third of the cancers of the stomach, one-half of the cancers of the kidney, and two-thirds of the cancers of the pancreas are not diagnosed. The progressive increase in the number of deaths from cancer is, to a large extent, only apparent because more cases of cancer are being recognized as the medical profession has a more accurate diagnostic armamentarium and the physician is being called upon more frequently by an increasingly cancer-conscious public. Also more people are living long enough to reach the so-called "cancer age." A little over a century ago only one to two per cent of people were past 60 years of age; by 1850 about four per cent of the people were 60 years of age or older and the life expectancy was about 40 years. By 1900 about six per cent of the population was more than 60 years of age and the life expectancy had risen to 50 years. Then in 1925 eight per cent of the people were over age 60 with life expectancy of 60; in 1950 the figures had reached 12 per cent for those 60 years or older, life expectancy now at 70 years.

In 1950 the people 60 years of age and older made up 20 per cent of the adult population. If this trend in longevity continues it is obvious that the problem of adequate medical care for the older age group will increase in importance. At the present time, one out of every four patients with cancer is being cured by surgery, x-rays or radium, one out of four is dying due to delayed or inadequate treatment and two out of four are doomed to die of cancer until new knowledge and more effective methods are found for its treatment.

SURGERY VERSUS AGE

Not too many years ago the phrase "inoperable because of age and general condition" was a familiar one in surgical circles and was considered as a contraindication to any surgical measure proposed for the cure, palliation of disease or for the prolongation of the life of a patient suffering from a serious disease such as cancer. The patient and/or the family was told that his disease was incurable because he was "too old." He was left with his malignant disease for it to pursue its natural course while he suffered more and more as the disease progressed. All humane considerations were supposedly fulfilled by assuring the sufferer of adequate supplies of drugs for the relief of pain during his terminal care. Such disposition of these unfortunate patients has been referred to as "giving the old man a chance" or "letting the old lady die in peace" and has been accepted too often, by physician and family alike, as the treatment of choice.

Such a behavior pattern in handling a patient is basically very much the same as that of many primitive people. Hayes Martin[2], citing Simmons and numerous investigators, says, "when a tribe was on the march in search of more plentiful game and better fishing, it was the custom, because of dire necessity and the exigencies of travel, to leave behind the old, the sick, and the infirm in some sort of a makeshift shelter, with what was considered a reasonable supply of food, fuel, and water. The practice of desertion of the old was also found in some sedentary and agricultural groups, and in primitive peoples inhabiting widely scattered areas of the globe, as, for instance, in the North and South American Indian, the Eskimo, the Lapp, the African Hottentot, the Australian Bushman, the Siberian, etc. Actually how much basic difference is there between the custom of "desertion" of the old Indian, Lapp, or Hottentot, and the policy of withholding surgery from the "old" cancer patient? The old aborigine could not keep up with the tribe on the march nor could he make war, hunt or fish, and he could not be expected to live long anyway. The "old" cancer patient is often financially dependent and as non-productive as the aged member of a primitive society; his over-all life expectancy is much shorter than that of the average of the whole population. Both are consumers rather than producers."

"Under primitive conditions, the welfare of the aged minority of the tribe came into direct conflict with the welfare of the majority—a problem for which there was only one practical solution. In the present day there may possibly be some persistence of this instinctive philosophy; nevertheless, in a true democracy, such a conflict ideally should not occur, and the welfare of the state should have no meaning other than that of the sum of the welfare of all individuals within it."

In evaluating the elderly patient as a surgical risk it is the physiological age which is of concern; the physiological age is of more importance than is the chronological age. In many individuals the tone of the tissues, the elasticity of the blood vessels, the cardiac reserve, etc., reveal to us that we are dealing with one who is physiologically considerably younger than the chronological age of the individual would indicate, while the reverse situation holds true in many instances.

When a decision is to be made upon the chances of survival of surgery, the patient's chronological age alone can not be considered as a contraindication to operation. When surgery offers a reasonable hope of cure, good palliation or the prolongation of a useful or comfortable life, the question should be when is it best to operate, rather than should surgery be undertaken.

In cancer surgery, for the most part, we are dealing with the older age group, *i.e.*, those past 60 years of age. For a person to have lived to be 60 or 70 years of age, or beyond it obviously is implied that he has successfully survived the many hazards of birth, the numerous diseases of infancy. childhood, and adolescence, including the infections, the communicable, metabolic, hereditary, as well as having escaped disastrous occupational diseases, traffic and travel hazards. To accomplish this feat an individual by necessity must have a "strong constitution" or present a toughness of "make up" which was not shared by his less fortunate brothers and sisters who may have succumbed at an earlier age. By virtue of the inherent strength of the physical make-up of these older people they tolerate major and lengthy surgical procedures well. This fact is substantiated by two recent reports concerning cancer surgery in the older patient.

Martin[3] et al. reported an operative mortality of 1.3 per cent (15 deaths) in 1129 patients undergoing radical surgery for cancer involving structures of the head and neck at Memorial Hospital during 1951 and 1952.

Modlin[4] reported 1,146 major surgical procedures performed for cancer at the Ellis Fischel State Cancer Hospital between 1947 and 1951 with an operative mortality of 1.2 per cent (24 deaths).

During the past twelve months I have had 14 patients between the ages 76 and 88 who underwent radical major surgery for cancer. All tolerated the procedures well. Included among them are two in which subtotal removal of the stomach had to be carried out and seven in whom radical neck dissections were necessary, in some instances the neck dissection being done in conjunction with the removal of the jaw or other structures. Notable were two, one aged 85 and one aged 88, who had a removal of the anus, rectum, and sigmoid colon for cancer of the rectum. Both were able to leave the hospital on the eleventh postoperative day.

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Trends in School Health Programs*

N. C. KNIGHT, M.D., M.P.H.
Jackson, Miss.

Let's take a look into our school health programs of today. Perhaps too many of us have taken the programs for granted too long, assuming that they are achieving a maximum result, and are coping effectively with the problems that continually arise with the changing of methods and procedures in public health, public education and medicine. But are they?

I wonder if we are strong enough for the tasks of our time regarding the physical and mental problems of our children. This is a time when we have increased obligations and opportunities with respect to school health programs. If we are to have effective programs and, if desired changes are to take place, then those of us responsible for the administration of the program must be sure that the school health program in each of our areas is broad in scope and effective in operation.

School health has long been a part—a major part—of the total community health and education programs, public health being responsible mainly for health services and public education being responsible mainly for health instruction. But in the past few years the program has been spotlighted. This vast concern has been brought about by new ways of preventing and treating diseases, new drugs, better technics in surgery and medical care, better public health action programs and more health information and education of professional workers, parents, and children. More and better services are available than ever before. Our people are more health conscious and more health demanding than ever before in our history. Again, I ask you, are we using all of our resources to meet these demands? Is each of us doing his best?

Various local agencies such as civic clubs, PTA's, women's clubs, welfare departments, etc., are auxiliaries to the program and can render valuable assistance. They should be used, and guided in the right direction. Official responsibility for administration of the program, however, rests with the local health and education departments.

The health service program aids schools and communities by identifying pupils needing various types of care, by acquainting the community with the unmet health needs of children and by proposing methods for the solution of their health problems. School health services supplement, but are no substitute for the health care patients should provide for their children. Rather than relieving patients of their responsibilities, these services are intended to encourage parents to devote more attention to child health, to acquaint them with health problems of which they are unaware, and to encourage them to use the services of their physician and dentist and community health agencies to promote the health of their child, *and* the child across the tracks.

Fundamentally, school health services are preventive and protective. At the same time, they are educational for teacher, child and parent.

When we take a look at the over-all school health program we see that it is probably the broadest and most far-reaching of all public health programs, and the main public health program that deals with the upper strata of society—directly. It contacts everyone in the community. It affords an opportunity to work with the tax payers, who in turn support the entire health program. The parent, the professional groups, the school administrators, the classroom teacher, the janitors, the bus drivers, and lunchroom supervisors; all of these, and others, play an important part in the school health program. When their roles complement each other the group becomes a well coordinated team with the child's health as the objective. Then much can be accomplished with a minimum of effort on the part of all concerned if a little time is spent on planning and coordinating the program and activities. The iniatiative in this should be taken by the health officer. When the persons involved develop professional jealousies, are uninformed on the abilities and rseponsibilities of the others and unwilling to have them do their share, the child is the victim. He learns little about healthful living, receives health services in a random fashion and lives in a tense, emotional environment.

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*Presented before the Administrative Section of the Mississippi Public Health Association, Jackson, Miss., December, 1955.

In many of our counties the program needs to have more participation by the health officer—especially in the organization, planning and medical examinations. Some of us are inclined to place too much of this responsibility on the nurse, or just leave it to chance.

The program this team conducts is composed of three large integrated areas:

1. Health Services
2. Health Instruction
3. Health Environment

No one group can do this job alone. The program in Mississippi is set up as a team-working program. The state departments of Health and Education are together responsible officially for the over-all program. They are two departments with one common interest and goal—better health for more children. They work as a team in the over-all organization and planning of policies and procedures, and that is the way it is intended to be done in the counties and cities. Also, you and I know very well that if we are to meet the needs of the school child, all individuals and all groups involved should thoroughly understand the program, the purposes and aims and work together as a team, each sharing his responsibility to help each child have maximum health. The health officer is the leader of the team. We are limited only by lack of organized efforts, by failure to plan together and by failing to utilize every possible resource in the community and state.

There must be understanding on the part of all of what we can and cannot do. The responsibility and authority of the health service part of the school health program rests squarely on the shoulders of the health officer. He is by virtue of his position and profession and by law, responsible for all matters that affect the public health of the community. Since school children are one segment of the population (approximately 35 per cent) their right to school health services should be recognized. Such health services should be conducted in accord with sound medical and public health practices.

As previously stated, the state's responsibility for the school health program is shared together by the state Departments of Health and Education. It is their function to formulate basic policies and procedures, practices and administer the program. The county health officer and the school administrator, are equally responsible for the local school health program—be it good or otherwise, the end result can come only from our efforts.

The trend of our time is for school health action programs. Is there any better way to get the program into action than by all working together in the same direction and with the same purpose? This calls for the help, the understanding, the support of the parent, the PTA groups, lay groups, civic clubs, and medical groups, and all professional personnel. Without this aid and interest the health status of the school child will fall short of his health needs. The program is worthwhile only if the end result is healthier boys and girls, better school and community health environments, more health information and health education to both parent and child.

The following are essential to any good school health program, and all of them are provided here in Mississippi:

1. Medical Services
   a. Health appraisal — weighing, measuring, screening test for vision and hearing, records of nurses and teachers observation of appearances and behavior patterns. Medical examination by the physician—which is a screening type examination to detect conditions needing referral to the family physician.
   b. Communicable disease control and immunization.
   c. Correction of remediable defects.
2. Preschool Roundups
   a. A well-planned and executed preschool roundup is essential to better school health programs. It will greatly reduce the load of the total school health program.

3. Mental health programs
4. Routine health inspection
5. Nursing service
6. Hospital facilities
7. Child Guidance Services
8. Nutrition Services
9. Sanitation
10. Provision for sudden illness and accidents at school and at home
11. Safety programs
12. Adequate and safe drinking water
13. Adequate hand washing facilities
14. Healthful environment
    a. School plant
    b. Proper heating and ventilation
    c. Etc.
15. Health Education and Health Instruction
16. Physical Education and Recreation
17. School Lunch Program
18. Health Councils

These are basic to a school health program. Around these, other activities may develop according to the needs of each individual school.

Actually, there have been few new developments in School Health Programs in recent years except in preventable disease control. The problem is getting done what we already know to do. Combined leadership and guidance provided by various organizations, with financial aid from state and local sources and team work of health and school personnel, have all helped to bring school health programs to their present stage of development. What the future will bring is better school health programs in Mississippi for the reason that we realize the importance of it and are vitally interested in it. As changing conditions and concepts have modified previous programs, so will they influence those of the future. As new and better ways for protecting and improving health are found they will be reflected in changes in school health programs. The goal of optimal health for all will remain, however, and continue to challenge leaders in public health, education and medicine.

Let's keep busy at this job and not let the trend of time pass us by as we in Mississippi today face the most critical period in history as to our schools and the future health of our children.

SUMMARY

The trend in school health programs is:

1. Organized teamwork
2. Responsibility for leadership definitely placed.
3. School health services should be organized so as to utilize fully the resources of the schools, the health department, the medical, dental and nursing professions and other agencies and groups without duplication of facilities or services.
4. Health education programs for community groups.
5. Planned over-all programs
6. The medical examination should be a learning experience for parent, teacher and child.
7. Evaluation of the program—
   This is most important in that it paves the way for new services and programs. It promotes coordination and helps place emphasis on those services which are most needed rather than those having the greatest dramatic appeal.
8. Thus we find more and better ways of securing public support for other health services and programs.

It is astonishing how soon the whole conscience begins to unravel, if a single stitch drops; one little sin indulged makes a hole you could put your head through. Charles Buxton

With meekness, humility, and diligence, apply yourself to the duties of your condition. They are the seemingly little things which make no noise that do the business. Henry More

STATE PROGRAM

EIGHTY-EIGHTH ANNUAL SESSION OF THE MISSISSIPPI STATE MEDICAL ASSOCIATION

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Kosciusko

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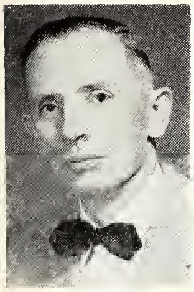

Dr. Bailey

Dr. Ricks

Dr. Long

Dr. Myers

SECTION ON EYE, EAR, NOSE, AND THROAT

Rose Room

Tuesday, May 8

1:30 p.m.

Joseph B. Rogers, M.D.
Chairman

I
"Infections of the Cornea"
Wendall Holmes, M.D., McComb
Discussion: W. T. Wilkins, M.D., Clarksdale

II
"Evaluation of X-ray Diagnosis In Eye, Ear, Nose and Throat"

Dr. D. F. Fisher and
D. H. Anthony, M.D.,
Memphis, Tennessee

III
"Pharyngeal Manifestations of Systemic Disease"
S. G. Mounger, M.D., Greenwood
Discussion: H. K. Rouse, M.D., Gulfport

IV
"Observations On Newer Methods of Preservation of Corneal Tissue"

Samuel D. McPherson, M.D.,
Durham, North Carolina

V
"The Use of Prednisolone, Prednisone, And Allied Substances In Ophthalmology"
Earl Green, M.D., Hattiesburg
Discussion: Lynn D. Abernethy, M.D., Jackson

SECTION ON PEDIATRICS

Victory Room

Tuesday, May 8

1:00 p.m.

Harvey F. Garrison, Jr., M.D.,

Chairman

I
"Skin Infections As A Source of Acute Nephritis In Children"
David B. Clark, M.D., Baltimore, Maryland

II
"Limp Children"
Blair Batson, M.D., Jackson

III
"Current Concepts Concerning Sickle Cell Disease, and Its Treatment"
James Grant Thompson, M.D., Jackson

IV
"Juvenile Melanoma"
Fred Allison, Jr., M.D., Jackson

V
"The Use of Adrenal Steroids In Infectious Diseases"

Clarence H. Webb, M.D.
Shreveport, Louisiana

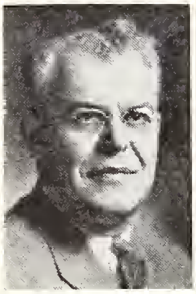
PUBLIC MEETING

May 8, 1956, 8:00 P.M.

Distinguished Service Oration (Hugh Agnew Gamble, M.D.) — Howard A. Nelson, M.D., Greenwood

President's Address — S. Lamar Bailey, M.D., President, Kosciusko

Address — Elmer Hess, M.D., President, AMA, Erie, Pennsylvania



SECTION ON PREVENTIVE MEDICINE

Rose Room

Wednesday, May 9

9:00 a.m.

R. L. Wyatt, M.D.
Chairman

I

"Tuberculosis and Histoplasmosis"

Michael L. Furcolow, M.D.,

Kansas City, Kansas

II
"The Family Physician in Medical Education"
Louis F. Rittelmeyer, M.D., Jackson
Discussion: Moncure Dabney, M.D., Crystal Springs

III

"The Virus Infections of the Respiratory Tract"

Robert J. Huebner, M.D.,

Bethesda, Maryland

SECTION ON OBSTETRICS AND GYNECOLOGY

Victory Room
Wednesday, May 9
9:00 a.m.

John F. Lucas, M.D.
Chairman

I
"Emergencies of the Third Stage of Labor: The Diagnosis and Management"
James E. Safley, M.D., Brookhaven
Discussion: I. J. Newton, M.D., Greenville
John R. Bise, M.D., Jackson

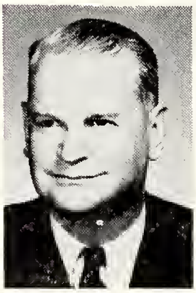
II
"The Sterile Couple"
William B. Wiener, M.D., Jackson
Discussion: James Packer, M.D., Jackson
George E. Howell, M.D., Meridian

III
"Vaginal Hysterectomy"
James L. Royals, M.D., Jackson
Discussion: C. H. Tyrone, M.D., New Orleans, La.
J. A. K. Birchett, Jr., M.D., Vicksburg

IV

"Connective Tissue With Special Reference To The Female"
Murray Angevine, M.D.,
Madison, Wisconsin

Discussion: W. V. Hare, M.D.,
Jackson
Hugh Lawson, M.D.,
New Orleans, La.



V

"Obstetric Morbidity and Mortality: Not Medical Care Alone"

Robert A. Ross, M.D.,
Chapel Hill, North Carolina

SECTION ON MEDICINE

Victory Room

Wednesday, May 9

1:00 p.m.

E. Leonard Posey, Jr., M.D.,
Chairman

I
"Changing Trends in Tuberculosis"
Joseph Price, M.D., Meridian

II
"Cardiac Syncope"
Norman Todd, M.D., Newton

III

"Clinical Evaluation of Patients Presenting With Goiter"

Mavis P. Kelsey, M.D.,

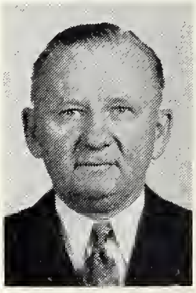
Houston, Texas

IV
"The Importance of Liver Biopsy in The Diagnosis of Hepatic Disease"
S. L. Stephenson, Jr., M.D., Jackson

V

"Complications and Problems Associated With the Management of Ulcerative Colitis"

J. A. Bargen, M.D.,
Rochester, Minnesota



VI

Panel: "Therapy in Heart Disease"
Joseph P. Melvin, M.D., Jackson, Moderator
Manning Hudson, M.D., Jackson
William Rosenblatt, M.D., Jackson
Ira Bright, M.D., Greenwood
Clifford Tilman, Natchez

SECTION ON SURGERY

Victory Room

Thursday, May 10
9:00 a.m.

J. P. Culpepper, Jr., M.D.,
Chairman

I

"The Acute Surgical Abdomen"

Arnold S. Jackson, M.D.,
Madison, Wisconsin

II

"Simple Mastectomy in the Treatment of Carcinoma of the Breast"
Dawson B. Conerly, Jr., M.D., Hattiesburg
Discussion: Eustace Winn, M.D., Greenville
Jack V. King, M.D., Jackson

III

"Emergency Gastric Resection"
W. C. Shands, M.D., Jackson
Discussion: H. T. Whitaker, M.D., Vicksburg
Edward Hamilton, M.D., Gulfport

IV

"Surgery of the Biliary Tract"
Harry Lee Claud, M.D.,

Washington, D. C.

V

"Bilateral Tubal Pregnancies"
Fred M. Sandifer, M.D., Greenwood
Discussion: A. V. Beacham, M.D., Magnolia
J. A. Atkinson, M.D., Brookhaven

Words are things, and a small drop of ink,
Falling like dew upon a thought, produces
That which makes thousands, perhaps millions,
think. —Byron

Woman's Auxiliary

THIRTY-THIRD ANNUAL SESSION

Mrs. R. Carter O'Ferrall, Jackson
President, Woman's Auxiliary to MSMA

Mrs. Joseph B. Rogers, Oxford
President-elect, Woman's Auxiliary to MSMA

Mrs. Lee R. Reid, Jackson
General Chairman, 33rd Annual Session

Mrs. John B. Howell, Jr., Canton
President, Central Medical Auxiliary

PROGRAM

Monday, May 7

4:30 p.m. Pre-convention Board Meeting — Tower Room

Tuesday, May 8

8:30 a.m. Registration, Heidelberg Lobby Arcade

9:30 a.m. Open Session — Rose Room
Mrs. R. C. O'Ferrall, presiding

Invocation
Mrs. S. Lamar Bailey, Kosciusko
Membership Pledge
Mrs. Cummings H. McCall, Gulfport
Address of Welcome
Mrs. John B. Howell, Canton
Response
Mrs. Guy Vise, Meridian
Presentation of Convention Chairman
Mrs. John B. Howell, Canton
Presentation of Committees
Mrs. Lee R. Reid, Jackson
Presentation of President-elect
Mrs. Joseph Rogers, Oxford
Report from AMA Auxiliary
Mrs. R. F. Grenfell, Jackson
Report from SMA Auxiliary
Mrs. T. A. Boines, Jackson
Greetings from SMA President-elect
Mrs. John J. O'Connell, St. Louis, Mo.
Report of Auxiliary Presidents

Luncheon, Heidelberg Hotel Roof, Mrs. R. C. O'Ferrall, presiding, honoring Mrs. Clark Bailey, Harlan, Kentucky, 3rd Vice President, AMA Auxiliary and Mrs. John J. O'Connell, St. Louis, President-elect, SMA Auxiliary

Greetings from AMA Auxiliary
Mrs. Clark Bailey, Harlan, Kentucky

Music — Style Show

Wednesday, May 9

7:30 a.m. Post Presidents Breakfast, Green Room
Mrs. M. M. Snelling, Gulfport

8:30 a.m. Registration—Heidelberg Lobby Arcade

9:30 a.m. General Session—Heidelberg Hotel Roof
Mrs. R. C. O'Ferrall, Jackson, presiding

Invocation—Mrs. W. F. Hand, Jackson
Greetings from Dr. S. Lamar Bailey, President, MSMA
Greetings from Dr. H. C. Ricks, President-elect, MSMA
Greetings from Dr. Gus Street, Advisor to Auxiliary
Memorial Service—Mrs. Johnson Witt, Jackson
Reading of Minutes
Recommendations of Board
Business
Report of Nominating Committee
Election of Officers
Appointment of Delegates to AMA
Credentials and Registration — Mrs. G. E. Twente, Jackson
Courtesy Regulations
Installation of Officers — Mrs. Clark Bailey, 3rd Vice President, AMA Auxiliary
Presentation of Gavel and Pin
Response of Incoming President—Mrs. J. B. Rogers, Oxford
Adjournment
Social Hour

Post Convention Board Meeting, Roof
Mrs. J. B. Rogers presiding

AUXILIARY BOARD LUNCHEON

Mrs. George Townsend, Forest, Mrs. A. T. Tatum, Hattiesburg, left, Mrs. Carter O'Ferrall, center, and Mrs. N. C. House, Batesville, discuss plans and Auxiliary undertakings for the year at the spring executive board luncheon held at the University Medical Center. Mrs. O'Ferrall, president, presided.

UNIVERSITY NEWS

Dr. Stuart C. Cullen, professor of Anesthesiology at the University of Iowa, spoke March 14 at the University of Mississippi Medical Center in Jackson.

On March 12, Dr. Eric Ogden, chairman of the Department of Physiology at the Ohio State University, was guest lecturer at the University Medical Center.

Dr. Michael Newton, professor of Obstetrics and Gynecology at the University of Mississippi Medical Center, spoke on, "Support During Labor," at the interim of the Academy of Obstetrics and Gynecology, District 7, in Memphis.

Dr. James D. Hardy, professor and chairman of the department of surgery at the University of Mississippi Medical Center, spoke to the Mobile County Medical Society in Mobile, Ala., in March on the subject, "Some Tumors of the Beaten Path: Diagnosis, Management and Prognosis."

Dr. Hardy was also the speaker for the March meeting of the South Mississippi Medical Society in Laurel. His topic, "The Diagnosis and Management of Some Vascular Conditions Amenable to Surgery."

Dr. Robert S. Caldwell, chief surgical resident, addressed the March meeting of the Northeast Mississippi Medical Society in Booneville.

Dr. James Robinson, senior registrar at St. Bartholomew's Hospital in London, England, spoke to surgical grand rounds at the University of Mississippi Medical Center in Jackson on March 29. Dr. Robinson is on leave of absence from St. Bartholomew's as instructor in surgery at the University of Michigan.

RESIDENCY IN PATHOLOGY

Open July 1, 1956

Salary first year — $250 per month (no Maintenance)

Write:
Dr. William Hare
Department of Pathology
University of Mississippi Medical Center
Jackson 6, Mississippi

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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MILDRED P. ANDERSON ... Assistant Editor

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Address all material for publication to W. H. Anderson, M.D., 104 Hospitality Street, Booneville, Mississippi.

CANCER

This issue of the journal is largely devoted to cancer. Cancer is second as a killer among diseases, and it is the cruelest. The open discovery of a cure for cancer, such as our vaccine for rabies, may never come, although we hope it does. After the victories that have been won in medicine, we shall not say that cancer can not be controlled. If cigarettes are causing cancer of the lungs, lung cancer might be practically eliminated. Where chronic irritation, infection, trauma cause cancer, this type can be largely controlled. Lacerations of the cervix no doubt predispose to cancer at this location. If this be true, it seems reasonable to repair the cervix just as carefully at the time of delivery as we do the perineum, eliminating also infections in this area. Keeping fit in every way helps to prevent cancer. This means of prevention should be constantly stressed, to pay well in other ways.

The campaign of education must be kept up. Research must double its efforts. In the name of human mercy we must take care of terminal cancer cases.

The control of cancer needs every member of the medical profession and every citizen. We should all be of one mind and one purpose. Neither politics nor selfishness has any place in this undertaking.

RURAL HEALTH FINDINGS

From the report of the Committee on Rural Health, Dr. S. K. Johnson of Pelahatchie, chairman, we have the basis of problems to be presented for our consideration at the state meeting. Excerpts from the report follow:

Essentially, the committee was concerned with 1) the adequacy of physician supply in Mississippi, 2) the distribution of physicians in the state, and 3) an appraisal of the over-all effectiveness, prior necessity, and further need for the State Medical Education Board Program.

This study has been divided into two distinct parts. The first is a continuation of the annual statistical reporting begun in 1951. The second—and probably more important undertaking—is a study of attitudes and views held by members of the Mississippi State Medical Association on supply and distribution of physicians and the program of rural scholarships under the board.

The General Picture

In broad summary, Mississippi physicians believe that there are, by far, an adequate number of physicians in the state. About seven doctors out of ten so stated. A small minority believes there are too few and a smaller minority believes there are too many.

About half the respondents to the survey believe that there was actually a shortage of physicians in Mississippi during the period 1948-1952, five out of ten asserting this belief. The remaining five were equally divided in believing that there was only an artificial or war shortage or no shortage at all, merely a maldistribution.

Most physicians in Mississippi feel that the State Medical Education Board program is no longer needed and should be discontinued.

URBAN-RURAL PHYSICIAN DISTRIBUTION

Size Community	Under 40	40 - 59	60 and over	Total
Under 2,500	189	102	220	511
Over 2,500	409	433	232	1,074
	598	535	452	1,585

PHYSICIAN DISTRIBUTION

Age Group	1952	1953	1954	1955	1956	Nt. Ch.
Under 40	437	489	525	548	598	+161
40 - 49	301	312	320	334	331	+ 30
50 - 59	153	159	169	174	204	+ 51
60 and over	570	528	514	476	452	−118
	1,461	1,488	1,528	1,532	1,585	+124

DR. RICHARDSON CHAIRMAN

At the annual meeting of the American Academy of General Practice held at Washington last week Dr. Fount Richardson, 316 West Dickson Street, Fayetteville, Arkansas, was elected chairman of the Board of Directors of the Academy. Dr. Richardson is president-elect of the Arkansas State Medical Society and will be installed president of the annual meeting in Little Rock this month. Dr. Richardson is a member of the Council of the Southern Medical Association representing Arkansas, and he has been secretary and chairman of the Section on General Practice.

STATE MEETING

Our state meeting is next month and a fine program is in the waiting. Every doctor should feel duty bound to attend his state meeting if at all possible. The scientific program is valuable and the business of the association concerns us all.

This year we meet in Jackson, the capital of the state. We usually have a good attendance in Jackson. The new MSMA headquarters will be open and we have our University Medical Center to visit. These accomplishments should bring pride to every member. Every doctor owes some of his time to organized medicine as well as to being a good citizen. It is well for a doctor to know the people for whom he practices and the circumstances under which they live. The medical profession and the people should know and understand each other. The state medical association can be a wonderful liaison in public relations.

It should be a great meeting for the doctors who took their first two years in medicine at the University of Mississippi. Every doctor should put himself squarely behind the four-year school and back it in every way possible. Make your plans and your reservation to attend the state meeting in Jackson, May 8-13. It is going to be a record-breaker for attendance.

MEDICAL SCHOOL

We were glad to note that Governor James P. Coleman was quick to come to the rescue of our medical school during a recent legislative flurry. Of course any one who is looking for it can find fault with our medical school and the way it is operated. But we should feel pride in the way our school is stepping off. The benedictions of former Governors Wright and White and now the watchful help of Governor Coleman, and the guidance of the Trustees of Institutions of Higher Learning all point to favorable sailing for this institution. Every one can make the contribution of loyalty and good will if nothing more. The time will come that the South will be the medical mecca of the world if we continue to push our schools to the front.

DR. DICKS

Recently we had a fine letter from Dr. John W. D. Dicks. His new address is: Dr. John W. D. Dicks, in care of Lyman A. Darling, R.F.D., Route 1, Greenspring Road, Wilmington 7, Delaware. It is always good to hear from him. A past-president of the state medical association and a member of the Fifty-Year Club, he will be with us in spirit if not in person.

News and Comment

MISSISSIPPI HEART ASSOCIATION

The Mississippi Heart Association is announcing that it will accept applications for heart research grants-in-aid. The deadline for applications to be considered this year is May 15, 1956. Further details and application forms may be secured by writing directly to Mississippi Heart Association, P.O. Box 584, Jackson, Mississippi.

FIFTY-YEAR CLUB

The Fifty-Year Club will have its luncheon at the state meeting on the first day, Tuesday. Dr. J. K. Avent will be the host. We feel sure we will have the very best meeting ever this year. Let the fifty-year men mark their calendar for this date.

Red Eye*

ALSON E. BRALEY, M.D.†
Iowa City, Iowa

OVER A PERIOD of years a change in the normal flora of bacteria in the conjunctiva has occurred. The staphylococcus (Micrococcus) is still the most common organism, but the pneumococcus and influenza bacillus have been replaced by gram negative rods.

Cason and Winkler[1] compared the preoperative cultures in their group of 1,604 patients with the figures of Khorazo and Thompson. Micrococcus pyogenous variety albus and diphtheroids were recovered in culture more frequently than any other organism. Staphylococcus aureus was recovered in 95 per cent of the patients from the lid and in 68 per cent from the conjunctiva. The frequency with which certain gram negative bacilli were encountered is greater than heretofore recorded. These organisms, members of the enteric gram negative rod group, were cultured from the conjunctiva of 5 per cent of the patients and from the lid of 7 per cent. It is interesting to note that in Khorazo and Thompson's studies only 1.6 per cent of the conjunctival cultures contained gram negative bacilli. They were mostly unidentified gram negative rods. Diphtheroids were common in this series, accounting for 40 per cent of positive cultures from the lids and 33 per cent from the conjunctiva. Only 23 per cent of the conjunctival cultures (374) showed no growth. Only 3 per cent of the lids (45 cases) showed no growth. The increase in the cases of gram negative rods is certainly noteworthy. Gilchrist-Gibson[2] took pre-operative cultures on 1,000 patients with normal conjunctival sacs. Those with bacteria staphylococci (Micrococcus) were found in 62 per cent, one-fifth of which were coagulose positive. B. xerosis (C. xerose) 30 per cent, proteus 2.5 per cent, P. pyocyanea (Pseudomonas aerugionsa) 3.0 per cent reported. He was not able to find a single diplobacillus or pneumococci.

Schreck[3] reported on 200 staphylococci found in the conjunctiva and found nine were staphylococcus albus, one of which was coagulose positive and eight coagulase negative. He found hemolytic staphylococcus albus in five instances, one was coagulose positive and four were negative; staphylococcus aureus 11 times, three coagulose positive and eight negative; hemolytic staphylococcus aureus 175 times, of which 51 were coagulose positive and 124 coagulose negative. Only 18 of the staphylococci cultures were sensitive to sulfacetimide.

Halbert and co-workers[4,5] have shown that many strains of bacteria found in the normal flora of the eye are antibiotic producing bacteria. From a series of twenty-two organisms which produced antibiotics, nine different antibiotic agents were found. Fourteen[5] of the twenty-two were rather clearly a polypeptide as evidenced by enzyme destruction. There were eight, however, which were resistant to enzyme activity but still appeared to be of a peptide structure. These antibiotics produced were most effective against Micrococci, Corynebacterium, Sarcina and some bacilli. The antibiotic producers were found among two hundred-eighty patients; of these, the conjunctiva appeared normal in two hundred and three patients, while one hundred-fifty-six of the patients showed some kind of conjunctivitis. Thygeson and I both studied many of the cases of conjunctivitis from the same institution, and while we were able to find a few cases of trachoma, Dr. Halbert[4] and his co-workers did not find any trachoma. There is certainly clear agreement that Mongoloid patients clinically have an increased amount of conjunctivitis for thirty-four out of forty-four cases (77 per cent) had conjunctivitis, while only sixty-seven of the two hundred-fifteen non-Mongoloid patients (31 per cent) had conjunctivitis. It is interesting that those persons with diseased conjunctivi had a higher incidence of active antibiotic producing strains in their conjunctiva than did normal individuals. The role of the antibiotic producers in conjunctivitis has not as yet been definitely determined. It is possible that these antibiotic producers may be more active on the culture plate than they are in the tissue.

Inflammations of the conjunctiva are frequent and may be caused by a wide variety of bacteria, local irritants, local allergies and degenerative processes. The infection of the conjunctiva may be either acute or chronic, and may be produced by bacteria or viruses. The response of the conjunctiva to most bacterial infection is a papillary hypertrophy, while the response to most viruses is follicular.

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*Presented at the sixty-seventh annual session of the Mid-South Postgraduate Medical Assembly, Memphis, Tenn., Feb. 14-17, 1956.

Most of the cases of acute conjunctivitis are produced by Koch-Weeks bacillus (Hemophilus aegypticus), Pneumococci (Diplococcus pneumoniae), Influenza (Hemophilus influenzae) and in some parts of the world Moraxella (Morax Axenfeld). Tostevin[6] reports an acute conjunctivitis from Australia. Acute conjunctivitis, or pink-eye, has a duration of from five to ten days. There is considerable discharge, edema and small hemorrhages, however, the cornea remains clear. The common organisms are the Morax-Axenfeld bacillus, the Koch-Weeks bacillus and the Pneumococcus; gonorrhea was so rare as to be not worthy of mention. He says that zinc sulfate should never be used in acute conjunctivitis. Davis and Hines[7] report that Hemophilus aegypticus or Koch-Weeks bacillus, and Hemophilus influenzae caused most of the conjunctivitis in elementary schools. The highest attack rate occurred in September, while the lowest was in December. The first three grades of school had more acute conjunctivitis than the other grades, and the white children were more likely to be affected than the colored. Mitsui, Tanaka and Hanabusa[8] report on the treatment of nine cases of acute bilateral conjunctivitis caused by Koch-Weeks bacillus. In one eye they used a combined oxytetracycline (terramycin-) polymys in B. ointment and in the other eye oxytetracycline-streptomycin ointment. The two ointments were equally affective.

Severe epidemic gonorrheal conjunctivitis, called "Rmad," is the main cause of blindness in North Africa, according to Rais[9]; however, Hugonot[10] and Toulant, Lamarande and Toulant[11] contend that epidemic gonorrheal conjunctivitis is rather rare in French North Africa. Toulant and associates say that gonorrheal conjunctivitis occurs during August and September and is not at all like the ophthalmia of the newborn. Both Hugonot and Toulant and associates state that the Koch-Weeks bacillus is the most frequent cause of purulent conjunctivitis in North Africa, particularly is it associated with central corneal ulcers. Thygeson[12] thinks that most of the severe epidemic ophthalmias of North Africa are caused by both the gonococcus and Koch-Weeks bacillus, occurring as a mixed infection. They may also occur with trachoma.

Rais[9] states that the epidemic conjunctivitis is improved within a few hours with chlortetracycline, and since this drug is so effective against trachoma, he feels that it should be used for prophylaxis. Toulant and associates think that 1 per cent streptomycin is most effective against the Koch-Weeks infection.

Prophylaxis of Ophthalmia Neonatorum—O'Brien[13] defines ophthalmia neonatorum as a definite purulent conjunctivitis of the newborn infant. It is not necessarily gonococcal, since gonorrhea, he states, is very rare in maternity units in England. Ophthalmia is a nuisance and the most common form of neonatal minor sepsis. The incidence of conjunctivitis in infants varies from 1.5 to 5.0 per cent. All of the male infants were treated with oxytetracycline drops or ointment, while the female infants were not treated but were used as controls. He stated that oxytetracycline is of no value in the prevention of ophthalmia. Simple cleansing of the eyelids is as effective as any form of topical prophylaxis.

Mallek, Spahn and Mallek[14] compare the neonatal use of silver nitrate and penicillin in a total of 2,161 births; 1,073 infants received silver nitrate and 1,088 received penicillin ointment, in a concentration of 2,500 units per gram. A small group, of 180, received a solution containing 100,000 units per cubic centimeter as drops in the eye at birth. They believe that penicillin is a safe substitute for silver nitrate and that a method of administration should be selected which requires minimal handling of the infant's lids. Many infants had edema of the lids and red eyes after prophylaxis, possibly a few more with silver nitrate than with penicillin. Martius[15] says that one-third of the infants treated with silver nitrate develops a conjunctivitis. He used an oily solution of penicillin, 100 units per gram, in 200 infants. Seven developed a slight conjunctivitis, which he called congestion, and one a catarrhal inflammation. He feels that the prophylaxis should be changed. Herold[16] thinks that streptomycin-penicillin ointment is best for prophylaxis.

There is no doubt that the prophylaxis of newborn babies' eyes should be changed or altered, since there is some danger in the use of silver nitrate. Nearly all of the states have laws requiring the use of silver nitrate. It is extremely difficult to change a state law; however, I think that all physicians should join forces, in order to revise the statutes. Silver nitrate should be replaced by one of the antibiotics, which is active against the gonococcus and the virus of inclusion conjunctivitis.

Ormsby[17] and associates carried out extensive investigations on the etiology of ophthalmia neonatorum and studied 97 babies with conjunctivitis in a series of 1,703 births. They found the following organisms in the 97 babies: Staphylococcus pyogenes, 47; Diplococcus pneumoniae, 11; a Streptococcus of the viridans group, 11; inclusion bodies, 7; Aerobacter aerogenes (Bacillus lacti aerogenes), 4; Neisseria gonorrheae, 3; negative (no growth), 14. They found little difference in the rates of recovery with sulfacetamid, Chlortetracycline, and oxytetracycline (terramycin).

The staphylococcus produces the most common acute or chronic conjunctivitis. Although some staphylococci may be found on the conjunctiva, they are usually present on the lids and the exotoxin spills into the conjunctiva and produces the reaction. The majority of cases of staphylococcal conjunctivitis have a nearly constant blepharitis, the associated acute conjunctivitis is recurrent. Antibiotic therapy must be directed toward the blepharitis. Less frequent forms of acute conjunctivitis are produced by the meningococcus, diphtheria and the streptococcus. While the latter are nearly always associated with a membrane, the clinical recognition and bacterial identification is important for antibiotic therapy.

There are many virus diseases which produce an acute conjunctivitis, the most common of which is the acute conjunctivitis of measles. Nearly all of the viruses show very little response to antibiotic therapy. There are, however, two important eye viruses belonging to the lympho granuloma psitticosis group of atypical viruses which respond to the wide spectrum antibiotics. These are the viruses of trachoma and inclusion conjunctivitis. While trachoma does not appear to be the important disease that it once was in the United States, it is an important disease in many parts of the world. Since there is considerable controversy regarding trachoma in the world-wide literature, I have depended upon the World Health Organization report by the Expert Committee on Trachoma[18]. This Committee consists of G. B. Bietti, El Tobgy, Maxwell Lyons, Y. Mitsui, H. Moutinho, R. Nataf, R. Pages and P. Thygeson. It is the committee's opinion that chlortetracycline and oxytetracycline are active against the disease, and they recognize that sulfonamides are likewise active, but that, because of the toxicity of sulfonamide, which of necessity must be given by mouth, it is not the drug of choice in mass therapy. They feel that for mass therapy chlortetracycline and oxytetracycline, 1 per cent ointment four times daily, should be given without interruption for a period of two months. Resistant patients should be given sulfonamides. Chlortetracycline (aureomycin) and oxytetracycline (terramycin) are both effective in the treatment of trachoma, in my hands. While the committee suggests the use of 1 per cent ointment, I prefer to use a solution during the day and an ointment at night. Both of these antibiotics are effective in the treatment of inclusion conjunctivitis as was shown by Ormsby[17] and his associates. Antibiotic therapy has not been effective against the other virus diseases of the conjunctiva, although Moffatt[19] and others have reported success in vaccinia. Thiel[20] thought that he got some improvement with a new antibiotic, which he called tyrosolvin. Tyrosolvin is tyrothricin and gramicidin made soluble in water by the addition of a quaternary ammonium base, cetyl pyridinium chloride.

Chronic conjunctivitis is produced by a variety of bacteria. The most common is the staphylococcus, secondary to a blepharitis. In some sections of the world Moraxella produces the chronic conjunctivitis in elderly people. Oxytetracycline and chlortetracycline are most effective. The bacillus is very difficult to grow, however, it can easily be identified in smears and scrapings.

EPIDEMIC KERATOCONJUNCTIVITIS

Epidemic keratoconjunctivitis is still being found[21],[22],[23]. Eye clinics appear to be an important source of the infection. Cockburn and co-workers[21] reported on an interesting survey of a small epidemic. During the two-month period when the study was undertaken, approximately forty patients with glaucoma attended the eye clinic. Nine of these patients developed the disease (an attack rate of 23.5 per cent). It was most likely that the inoculation occurred sometime during the examination for glaucoma, the tonometer being considered the most likely vehicle of transmission. Some of the patients from this eye clinic wandered into other clinics and smaller outbreaks occurred so that six small epidemics were found, all centering around a single large eye clinic. Serological studies of serum from patients in the two epidemics were entirely negative for both St. Louis encephalitis and the so-called Sanders EK virus. Further inoculations may have been prevented by adoption of a more efficient method of sterilizing the tonometer. There is no doubt that this was an epidemic keratoconjunctivitis since the majority of the patients developed corneal opacities and the disease ran a fairly typical course. Feist[23] made some interesting observations on corneal changes associated with epidemic keratoconjunctivitis. He divides the corneal changes into four stages: 1) Loosening of the epithelium, 2) Protrusion of the epithelium, 3) Typical foci of infection, 4) Incrustation or formation of denser opacities.

Cockburn[21] describes an epidemic of conjunctivitis associated with pharyngitis, muscle pain and pyrexia. There is a moderate follicular inflammation, without purulent discharge. There may be slight edema. There is very little discomfort or photophobia. The conjunctivitis persists for three days to three weeks. With the slit lamp microscope he found a few white plaques of one mm. or less in size in the subconjunctival region. There was no ulceration. The throat lesions consist of soft vesicles varying in size from pinhead size to the size of a pea, mostly on the soft palate. He was able to find two hundred and six cases. All of the patients were seen in the latter part of July and the first part of August and nearly all of them attended a swimming pool in nearby Greeley, Colorado. He states that the disease is transmitted either by direct contact or by association with the swimming pool. Two other epidemics were also followed, one in Missouri and the other at another place in Colorado.

It is possible that the cases reported by Holmes[25] may have been similar to the Greeley disease. He estimated that there were 5,000 cases in Hawaii in 1951.

Cat scratch fever was discussed in an interesting editorial in the *Journal of the American Medical Association*[26] in which they feel that the original lesion is many times a conjunctivitis followed by a regional lymphadenopathy and at times a generalized lymphadenopathy. In a personal communication from Cassady, he states that there is a strong similarity between the patients who had Leptothrix infection and those with the so-called cat scratch fever of Daniels and McMurray[27]. Cassady retested many of his former patients who had had the Leptothrix infection and found that they were also sensitive to Daniel's and McMurray's antigen. Since the Leptothrix also occurs in cats and can frequently be transmitted to humans as was demonstrated by Henry[28], they may be one and the same disease. I feel that Verhoeff's and King's procedures should be applied to the patients with so-called benign infectious lymphoreticulosis to determine if the Leptothrix is present in cat scratch fever. The ocular manifestations in infectious mononucleosis were presented by Tanner[29] which substantiates some of the evidence presented by Jones, Howie and Wilson[30]. Tanner believes that there are two types of ocular manifestations, namely; 1) involvement of the eye and the adnexa directly with the infectious agent of infectious mononucleosis, 2) the effect upon the vision and the neuro-ophthalmological apparatus apparently due to more remote lesions. These latter lesions are probably in the central nervous system. The direct ocular involvement is probably fairly common, at least Jones, Howie and Wilson felt that it was since eighty-four of their patients had acute conjunctivitis. Tanner feels that there is potential seriousness associated with the lesion, particularly when the central nervous system is involved. Tanner wishes to emphasize that the widespread distribution of the lesions of mononucleosis are not fully appreciated. He states that conjunctivitis, orbital edema, retrobulbar pain, optic neuritis, retinal edema and uveitis may occur. Laboratory tests may be of value in making the diagnosis and the finding of the typical infectious mononucleosis cells in the blood stream is also of great aid. Jones, et al[30] describe the finding of characteristic mononucleosis cells in the conjunctival biopsies.

Parinaud's syndrome may be caused by several organisms, i.e., Leptothrix, Myco. tuberculosis, Pasteurella tularemia, sporotrichum and possibly viruses. An interesting outbreak of tularemia was reported by Thomas, Cordier and Algan[31]. There were four cases of the oculo-glandular type among 112 known cases of tularemia. Rabbits were the source of infection. The onset was a violent, acute conjunctivitis with nodules and ulceration associated with preauricular lymphadenopathy and fever. Some of the preauricular glands suppurated. Ridley and Smith[32] isolated a Leptothrix from a suppurating preauricular gland. The organism differed from the one isolated by Verhoeff and King in that it did not ferment sugars and was strictly microaerophilic.

Vaccinia—Most vaccinia lesions occur on the lids, however, Moffatt[33] reported an accidental autoinoculation of the conjunctiva. He stated that 200 to 300 cases have been reported since 1796, with corneal involvement in ten to 30 per cent of the cases. When accidental infections with vaccinia are auto-inoculations from a pustule elsewhere on the body, the prognosis is favorable; however, when the infection occurs from another individual the lesion may be severe. Marginal infiltrates of the cornea occur with vascularization; however, a true vaccinial pustule may occur on the conjunctiva and cornea. This type is usually serious. Moffatt also discusses the development of disciform keratitis.

Newcastle's disease in the conjunctiva is always an accident infection. Lippmann[34] states that the morbidity of Newcastle's disease in chickens is about 30 per cent and the mortality in young chickens is about 90 per cent. He states that all human cases have had direct contact with chickens. He presents an interesting patient, whose left eye was infected in November and the virus was isolated. He recovered from this infection and the right eye became infected in December, but the second infection was milder. The virus is 680 millimicra long in sperm-like forms or ovoid without a tail. He thinks that the serological diagnosis must be done with great caution.

Santoni and Bonaduce[35] were able to inoculate chickens' eyes with the Newcastle virus with the production of a systemic infection. Nelson, Pomeroy, Schrall, Park and Lindemann[36] discuss the literature of Newcastle's infection since it was first reported in 1943. They found 40 cases of conjunctivitis among 90 workers in a chicken canning factory. Most cases had a unilateral conjunctivitis and about half of them had a preauricular lymphadenitis. They reported a serum neutralization titer of 64 per cent of exposed workers who had not had conjunctivitis.

Paufique and Moreau[37] describe three cases and review the world-known literature of 15 cases of "woody" conjunctivitis. The disease usually occurs between the ages of two and six years and there is some familial tendency. It begins with nasal pharyngeal infection and a membranous sore throat. The vulva vaginal mucous membrane is also involved. There are three cardinal signs, a pseudomembrane on the palpebral conjunctiva which is yellowish white, one to two millimeters thick, wood-like induration of the lids and corneal change which leads to perforation. The authors describe the fibrinous membrane over and in the conjunctiva as keratinization and areas of deep necrosis with crypts filled with pseudomembranous exudate. There is also a severe fibrinous reaction of the lids with the induration which leads to the woodiness. They state that beta irradiation is the only worthwhile therapy. Winter and Michler[38] reported two cases of membranous conjunctivitis of unknown origin in white brothers, ages one and four. They consistently found a pneumococcus type XIX and VII. In reading their description, it reminded me of Paufique and Moreau patients. Goldman and Hof[39] present the family tree of this pseudomembranous conjunctivitis. The pseudomembranous conjunctivitis followed a sore throat, a vulvo vaginitis and an acute nephritis. The family history showed that three aunts and one cousin had suffered from this disease. Two of these were completely blind and one was almost blind. They feel that it is not so much a family carrier state but a familial deficient defense mechanism which is important. This develops during the first decade of life and is more common in females than in males.

Allergic conjunctivitis—Since the conjunctiva is exposed to inhalants, contactants, and bacteria, it is not surprising that allergies occur. These allergies may take several forms. They may be divided into several groups, those produced by inhalants and contactants, those produced by bacteria and bacterial toxins, the atopic type, and a group of unknown allergic conjunctivitis. This latter group is best exemplified by so-called vernal conjunctivitis, the conjunctivitis which begins in childhood as a disease of the spring, summer, and autumn. It produces a severe conjunctival reaction in the form of large cobblestone papillae.

The acute allergic conjunctivitis produced by inhalants is an immediate response. Pollen, dust, dander, feathers and food produce this conjunctivitis. It is associated with a milky discharge from the conjunctiva, and the conjunctival surface is pale and covered with fine papillae. Hanser[40],[41] and co-workers have shown that eosinophils are a prominent feature of this disease and the number of eosinophils will increase as the symptoms increase.

The allergic dermatoconjunctivitis, which is sometimes associated with an eczematoid dermatitis of the skin of the lid, is usually a delayed allergic response. Locally applied drugs such as atropine, scopolamine, cosmetics, and wearing apparel are important allergens to produce this conjunctivitis. In contradistinction to the acute allergic conjunctivitis, the conjunctiva in this type is usually red and inflamed. Eosinophils may or may not be apparent in the scrapings. Theodore[42] thinks that ocular drug intolerances are important in the development of drug allergies. Many of these drugs act as irritants, particularly if they deteriorate in solution and their degenerative products act as adjuvants in sensitizing the conjunctiva. If the drug irritant can be recognized early enough, sometimes a drug allergy can be prevented. This is particularly true if the drugs are carefully compounded.

Chronic allergic conjunctivitis is usually considered to be of two types: the atopic, which has been described by Hogan[43] and the delayed bacterial type. This latter group may show an allergic response to bacteria, fungi, and possibly viruses. The atopic allergic conjunctivitis is so typical, Hogan feels, that the entity deserves a specific title of atopic keratoconjunctivitis. The atopic individual is sensitized during infancy. It is an immediate reaction to the sensitizing agent. The conjunctivitis is associated with burning and mucoid secretion. Remissions and excaberations are common. Secondary infections with staphylococci occur.

The bacterial, or delayed type of allergic conjunctivitis, has been more difficult to evaluate. The outstanding example of the bacterial allergy is phlyctenular keratoconjunctivitis. The volume of literature on phlyctenular conjunctivitis is enormous[44],[45],[46],[47]. Thygeson[48] has shown that phlyctenular keratoconjunctivitis is almost entirely an allergy to tuberculoprotein. He states that on rare occasions there may be an allergy either to bacterial, viral, or fungus infections. Numerous authors feel that the pneumococcus and Koch-Weeks conjunctivitis may have an associated phlyctenular allergy. Thygeson[48] says that these two organisms are very low sensitizers and it may be that these organisms act as a trigger mechanism to produce the sensitization to the tuberculoprotein. He has also demonstrated that the staphylococcus is capable of producing a phlyctenular type lesion in the eye. The great majority of cases, however, are certainly produced by this tuberculoprotein.

TREATMENT

The most important single factor, in the treatment of all allergic diseases, is a careful history. If one proceeds in an orderly manner of classification and careful questioning of the patient the specific sensitizing substance may be discovered. The most effective therapeutic measure is either remove the cause of the allergy or remove the patient from the offending agent. Hansel[49] has published an excellent monograph on high dilution desensitization and in the cases of pollens, house dust, and most inhalants, his results are excellent. Prewitt[50] and others have been encouraged by the use of nonspecific therapy. Staphylococcal toxoid and antitoxins have been widely used as nonspecific desensitization with staphylococcal toxoid and house dust.

Drug Therapy—

Antihistaminics—I have not been favorably impressed with any of the antihistaminics in most of the ocular allergies. There is no question of their value in some of the seasonal inhalant type of allergic conjunctivitis. Although many of the antihistaminics have been widely used, both by mouth and locally, and excellent results are claimed, my results have not been so encouraging. Since there are many new antihistaminics being placed on the market, I continue to try each new product.

Cortisone and ACTH—The favorable results of both cortisone and ACTH are certainly justified. At the present time I feel that cortisone blocks the inflammatory reaction whether it is applied locally or given systemically. There is no clinical or experimental data to show that they have any effect on the allergic state. Hydrocortisone has been more effective, in my hands, than any of the other agents. During the past few months I have used mixtures of chlortetracycline and hydrocortisone, neomycin and hydrocortisone, oxytetracycline and hydrocortisone in mineral oil. This latter compound has been the most effective and the least irritating. It is used to rub on the lids as well as eye drops. There is very little blurring of the vision as is so common with ointments.

The bacteria on and in the conjunctiva must be reached by the antibiotic. It is then necessary to use a vehicle that will help to carry the substance into all the crevices and folds in the membrane. Solutions of aqueous or mineral oil are the best. Solutions are likewise washed out by the tears and must be replaced frequentlyI use solutions of the antibiotic every hour and ointment or oil mixtures at night for most cases of conjunctivitis. If there is no clinical improvement in the infection in 48 hours the antibiotic should be changed.

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DR. VAN RIPER EXPRESSES APPRECIATION

The following message of appreciation, addressed to Dr. S. Lamar Bailey, MSMA president, from Dr. Hart E. Van Riper, medical director for the National Foundation for Infantile Paralysis, is relayed to members of the state association:

"May I take this opportunity, on the occasion of the annual meeting of the Mississippi State Medical Association, to express thanks from the National Foundation for Infantile Paralysis to the society as a whole and to its individual members for their excellent cooperaton with the state health department and the National Foundation in the successful conduct of the poliomyelitis vaccine demonstration program in Mississippi during 1955.

"The chief beneficiaries of this program, of course, were the Mississippi school children, mainly in the first and second grades, who received one or more injections of vaccine supplied by the National Foundation during the year 1955. A total of 224,370 cc. of vaccine was supplied.

"You may be interested to know that, thanks to your help, 109,464 Mississippi children received at least one inoculation; 73,738 received two inoculations; and 2,041 received a third (booster) inoculation with this vaccine up to October 26, 1955.

"Approximately 44 per cent of the Mississippi children in the 5-9 age group, the age group most susceptible to paralytic poliomyelitis, thus obtained a high degree of protection against the disease in 1955 as a result of this program.

"The cooperation of the Mississippi State Medical Association helped materially to account for this fine record."

The Modern Approach to Rheumatic Fever*

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Dr. T. Duckett Jones, writing in the *Journal of the American Medical Association* in 1944, first proposed a constellation of symptoms and signs which constituted valid criteria for the guidance of physicians in the diagnosis of rheumatic fever[1]. Jones proposed these criteria at a time when workers were far less sure of the role of the beta hemolytic streptococcus in the etiology of rheumatic fever than now, and at a time when little was known of successful prophylaxis against the disease. The original criteria proposed in 1944, modified somewhat over the years, have served a useful purpose in the standardization of the diagnosis, especially in the classification of patients for inclusion in study groups such as the recent United Kingdom-United States Cooperative Study on the effectiveness of ACTH, cortisone and aspirin in the treatment of rheumatic fever. The most recent revision of Jones' criteria has been widely distributed to the profession as recently as the last month or two by the American Heart Association[2] and consists of items in Table I. I quote freely from this report.

TABLE I
JONES CRITERIA (MODIFIED) FOR GUIDANCE IN THE DIAGNOSIS OF RHEUMATIC FEVER

Major Criteria	Minor Criteria
Carditis	Fever
Polyarthritis	Arthralgia
Chorea	Prolonged P-R interval in the ECG
Subcutaneous nodules	Increased ESR, WBC, or presence of C-reactive protein
Erythema marginatum	Preceding beta hemolytic streptococcal infection
	Previous rheumatic fever or inactive rheumatic heart disease

In this report, "the diagnostic features of the disease are divided as originally proposed by Jones into major and minor categories, dependent upon their relative occurrence in rheumatic fever and disease syndromes from which this disease must be differentiated. Thus chorea is included among the major criteria while fever, a symptom common to many diseases, is placed in a minor category. These major and minor categories have no significance beyond their diagnostic import either as to prognosis, the amount of rheumatic activity, or severity of acute illness.

The presence of two major criteria or one major and two minor criteria indicates a high probability of the presence of rheumatic fever with one notable exception . . . This combination in particular, polyarthritis, fever and elevated sedimentation rate, is the weakest of all combinations of major and minor criteria since it is common to a dozen or more other diseases which might be confused with rheumatic fever. These criteria are not meant to substitute for the wisdom and judgement of the clinician. They are designed only to guide him towards a diagnosis with the suggestion that he follow carefully all questionable cases and restrict the diagnosis of rheumatic fever to illnesses which meet acceptable criteria."

While admittedly helpful, it is still a statistical approach, and it has been my experience in teaching medical students and house officers, that useful aids in the diagnosis and the understanding of the disease come more from an approach based on current etiologic thinking. Should we be so cautious that we fail to emphasize that acute rheumatic fever is the concomitant of a hyperreactive state in the patient to streptococcal products? Should we not learn to use the same tools for diagnosis that we use for the assessment of activity? Since the modern doctor has in his hands a tremendously effective weapon against the production of severe heart disease when he invokes prophylaxis against further streptococcal infections, why should he not think in terms of streptococcal infection from the moment he first grapples with the clinical problem at hand? In short, it is my conviction that the physician profits most by approaching rheumatic fever from the etiologic rather than the statistical standpoint, and with all due apologies to Dr. Jones, who was my own teacher, and to the other distinguished rheumatologists who have fostered these statistical criteria, I would prefer to foster an etiologic approach.

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An attack of rheumatic fever follows infection by the beta hemolytic streptococcus. This is not to say that rheumatic fever necessarily follows what is usually thought to be a typical beta hemolytic strep. infection, namely, acute exudate tonsillitis. Actually, exudates may occur in acute respiratory disease of viral etiology. Also, many strep. infections are much milder than this even in adults, and when dealing with small children, one may even say that the majority of streptococcal infections lack the fiery red throat and the exudate. Once a physician becomes acquainted with this fact, he is far more humble about his clinical acumen, places far greater stock in the noxious potentiality of a casual respiratory infection, takes throat cultures far more frequently to guide him, and begins to look for the help that a subsequent rise in streptococcal antibodies can give him.

Rheumatic fever does not follow every streptococcal infection. The individual apparently must by circumstance or nature be able to respond to his streptococcal infection in an exaggerated or hyperergic manner. This practically eliminates children under three and many older individuals of optimal nutritional, economic and hereditary background, as likely ground for the development of rheumatic fever. A susceptible individual is quite likely to have had frequent previous streptococcal infections, and in the laboratory, he tips his hand that he is an hyperergic individual usually (although there may be some controversy about this) by exhibiting a strongly positive C-reactive protein reaction.

The rheumatic fever patient not only is hyperreactive, but specifically is hyperreactive to streptococcal products. Until we know, and are able to measure precisely the immunologic mechanism responsible for rheumatic fever damage, we must be satisfied to measure the immune response to related streptococcal products. Experience has shown, however, that the rheumatic fever patient practically always demonstrates his tendency to exaggerated response to these products by exhibiting, at the time of his rheumatic symptoms, an unusually high level of antistreptokinase, antistreptolysin O and antistreptococcal hyaluronidase antibodies in his serum. Since, as has been mentioned, we are not measuring the antibody which actually causes rheumatic fever, the finding of high level of antistreptococcal antibodies does not of itself make a diagnosis of rheumatic fever. It does, however, indicate a recent experience with the beta hemolytic streptococcus and can be used more accurately to define the status of the patient with whom we are concerned.

Rheumatic fever damages the patient generally. He manifests this damage by exhibiting a number of evidences of a non-specific nature related to his serum albumin to some of the serum globulins, the sedimentation rate becomes elevated and certain globulin fractions such as the serum mucoproteins climb to high levels. Fever, loss of appetite, and slight anemia are also clinical manifestations of this non-specific sickness state.

Diagnosable rheumatic fever must show some signs referrable to inflammation of the so-called collagen system. Here the major diagnostic criteria of Jones are the physician's solid ground to stand ous nodules and specific rheumatic skin manifesta- on. Evidence of carditis, polyarthritis, subcutane- tions such as erythema marginatum, and, in my experience, erythema nodosum in a non-tuberculin reacting child. The experience with chorea must certainly vary from one part of the country to others. In our locality, chorea is not often an accompaniment of rheumatic fever.

Instead of carefully divorcing diagnosis from management and follow-up, the etiologic approach emphasizes the use of the same knowledge and principles for both. Since the physician's attention is focused on the streptococcus from the first, it follows that he will be vigorous in his attempts to eradicate the organisms from the throat without delay, and be insistent on adequate prophylaxis against its reimplantation in the throat. Success in this endeavor and the proper application of symptomatic relief to the patient in the form of bed rest and aspirin or adrenal steroids are followed by the speedy subsidence of the C-reactive protein in the serum. Since the serum streptococcal antibodies were used only to determine the patient's original hyperreactive state, they are expected to return to low levels or to disappear in the course of two or three months without relation to the course of the rheumatic process, but their subsequent rise may be used as a delicate index to indicate failure of application of prophylaxis resulting in reinfection with the streptococcus. The non-specific evidences of inflammatory damage, the elevated sedimentation rate and the serum mucoprotein subside more gradually with the deterioration of the abnormal serum protein ratios. The spontaneous disappearance of the anemia is also a valuable sign of the disappearance of the rheumatic process. By the use of such laboratory aids, the course of the disease in the patient can be followed with greater assurance than by re-lying upon cardiac signs alone which may demonstrate detectable change very slowly.

Where rheumatic inflammation not mimicked by a host of other diseases, one would not be forced to be so logical. Where streptococcal infection regularly followed by rheumatism, the task would not be so difficult. Confidence comes in the analysis of symptoms and signs which are compatible with rheumatic fever in relation to the patient's response to a previous strep. infection. Confidence in diagnosis commands a premium in these times when the physician is confronted with good evidence that 1) rheumatic fever can be prevented by adequate penicillin treatment of the original streptococcal infection; 2) that recurrences of rheumatic fever and therefore a great portion of serious heart disease can be prevented by penicillin prophylaxis against subsequent streptococcal infections; and 3) the knowledge that the decision to employ such prophylaxis consigns the patients to years, probably, of antibiotic administration and follow-up with accompanying economic considerations.

At this point I must emphasize that up to now, this discussion has centered around classic rheumatic fever developing in a child who has suffered a streptococcus infection untreated by penicillin or other antibiotic. Critical observation of the course of events after various regimens of antibiotic therapy has made clear several facts about antibiotic-treated streptococcus infections which could not have been determined otherwise. It has been demonstrated by the Air Force Study Group[3] that thorough treatment with penicillin for a period of ten days during the streptococcal pharyngitis causes a very marked reduction of diagnosable rheumatic fever subsequently. The eradication of streptococci from the throat within the first few days of infection also suppresses the subsequent rise of antibodies to streptococcal by-products[4]. The reduction in the rheumatic fever rate does not require that the penicillin be administered from the onset of the pharyngitis. It does, however, require large enough doses of penicillin to eradicate the streptococci from the throat. It is most important that the streptococci be eradicated from the throat by the ninth day after the onset of the pharyngitis[5]. Apparently the persistence of streptococci in the late stages of pharyngitis, when immune mechanisms are coming into play, is necessary to make the patient vulnerable to rheumatic fever. Here again the studies elucidating these effects of penicillin on rheumatic fever used the Jones criteria for diagnosis.

As is the case with many other diseases, the advent of potent antitiotic drugs and perhaps some of the less potent but more easily administered antibiotic drugs has served also to make diagnosis more difficult. For instance, can penicillin therapy suppress rheumatic fever to such an extent that the Jones criteria cannot be fulfilled but the patient still develop significant carditis? Weinstein, who has followed a number of post-scarlet fever patients, believes so[9]. Having proved the fact of streptococcal infection in his patients and thereafter scrutinizing his patients closely, he found that a significant number (8%) of patients developed electrocardiographic changes (prolonged P-R interval) and in a few cases other evidences of rheumatic heart disease. Seven years later most of these patients had definite rheumatic heart disease. The data suggest that penicillin therapy of scarlet fever in children even when applied early may not significantly decrease the eventual occurrence of rheumatic carditis.

Weinstein concludes: "In children the clinical features of the acute rheumatic state may be markedly suppressed by the chemotherapy of the initiating streptococcal infection so that most or all of the characteristic signs and symptoms are absent and electrocardiographic evidence of carditis becomes the most prominent and sometimes the only diagnostic feature. Because of this it is probably necessary to redefine the present criteria for the diagnosis of acute rheumatic fever particularly for children with antibiotic treated streptococcal pharyngitis. The demonstration of prolonged atrioventric-conduction time after a latent period probably is highly significant for the diagnosis of rheumatic carditis the absence of "major" manifestations if the patient can be proved to have had a recent streptococcal infection." Certainly any of the major criteria occurring alone has high diagnostic import if it occurs in a patient proved to have had a recent streptococcal infection[9]. It is practically pathognomonic if it occurs in a patient proved to be hyperreactive to streptococcal by-products.

To recapitulate, the logical approach to the diagnosis of rheumatic fever begins with the streptococcus and proceeds through a consideration of the patient's response following an infection due to this organism, including evidences of an exaggerated response to streptococcal products, to a final recognition of specific rheumatic inflammation. (Table II).

The fact that adequate penicillin therapy can prevent rheumatic fever and its cardiac complica-

TABLE II

ETIOLOGIC APPROACH TO THE DIAGNOSIS OF RHEUMATIC FEVER

- B hemolytic streptococcal infection
  - Culture
- Hyperergic individual
  - C-Reactive Protein
- Excessive antibody to streptococcal products
  - Antistreptokinase
  - Antistreptolysin O
- Damage to patient
  - Sedimentation rate
  - Serum mucoprotein
  - fever, anemia, etc.

tions carries breath-taking implications because it places tremendous responsibility on each physician to insure that preventive measures are brought to bear upon his patients. The foregoing discussion has attempted to make the decisions regarding correct diagnosis easier. The increasing availability of the necessary laboratory tests and our greater knowledge of the disease will tend to create confidence in these decisions.

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SAVINGS BONDS INCOME FOR RETIREMENT

During the fifteen years that the Treasury has offered Series E. Savings Bonds to the public, the regular purchase of the bonds to build retirement income has been spreading. With the Fifteenth Anniversary of the first E Bond sale being celebrated on May 1st, Dr. Lamar Bailey of Kosciusko, President, Mississippi Medical Association, points out that a sizeable part of the $40 billion now outstanding in Series E and H Bonds represents income built up through the years for retirement.

"A good plan which many people use is to buy E Bonds monthly for at least 19 years and 8 months before retirement," explains Dr. Bailey. "That is because the E Bonds you buy now mature in 9 years and 8 months from issue date, and the automatic extension option keeps them earning interest and growing in cash value for an additional ten years. In this way you get the maximum of interest," he stated.

Dr. Bailey cited a typical plan based on buying a $50 Series E Bond for $37.50 each month for 19 years and 8 months and holding each month for the extra 10 years after maturity. Beginning with the ninth month of the nineteenth year, each month a Bond worth $67.34 can be redeemed for the next 19 years and 8 months after bond buying ceases. In the end you get back a total of $15,892 on a cash investment of $8,850. The interest totals $7,042, or 80 percent on your investment.

Buying a $100 E Bond each month over the same period will bring in $134.68 a month for 19 years and 8 months, a total of $31,784 on a $17,700 investment earning $14,084 interest.

"You can fit these retirement plans to your own circumstances," Dr. Bailey continued. "The smallest E Bond sells for $18.75; the largest is $10,000, selling for $7,500, and the annual purchase limit is $20,000. What appeals to the small saver and the wealthy investor alike is the complete safety of the United States Savings Bond as an investment. You know exactly what it will be worth at all times during the next twenty years and you can count on it. And your money is available anytime you might need it.

"In this fifteenth Anniversary year of the present bond program, sales are running higher than at any time since the war. An inquiry would reveal that a large number are buying Savings Bonds to add independence and comfort to their years after retirement.

"The Series H Bond, which pays interest each six months, is bought by many for retirement income. The smallest bond of this series is $500, selling at par. The E Bond, regularly bought, is widely used to provide income as the bonds come due," Dr. Bailey concluded.

A Comparative Study of Six Ataraxics in 1130 Neuro-Psychiatric Cases

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This study was begun in June, 1954. The year prior to this date 11,320 shock treatments were given to less than one-half of the 11,320 patients involved in this work. This maintained even the most disturbed case in a relatively good condition. Some were sent home. Shock therapy, either insulin or electro, cannot, in most cases, be given at home because the cost is prohibitive and the arrangement impractical. It was with skepticism and reluctance that I began the use of tranquilizing drugs, but was pushed on by years of palliative and temporary successes other types of treatment afforded. The results of the first week's treatment convinced me that there was some good in this alkaloid of Rauwolfia-serpentina.

After three months I knew that larger doses than five milligrams parenterally and eight milligrams by mouth, which I had been giving, were necessary for improvement in most psychotic cases. I had given up to 20 milligrams intravenously in acutely disturbed patients.

Of the first series of 350 patients on reserpine, 42.8 per cent went home with prescriptions for the dosage level which seemed to maintain them in their improved mental condition. Twenty per cent of these were returned to our hospital. Most of them had discontinued taking the reserpine although they were instructed not to miss a single dose.

Our new series of 180 cases on reserpine is comparable to the first in side effects and beneficence. A dosage range from .25 to 30 milligrams daily has been given by mouth if accepted by the patient. If not accepted, the medication is given parenterally or intravenously. The time difference of effect is slightly decreased by the intramuscular and intravenous routes. The ultimate results are the same.

It has been necessary to continue the reserpine for as long as ten months, with dosages up to 30 milligrams daily, before a marked benefit was noted in resistant cases. If we had given the alkaloid for only two or three months and in smaller dosage, we would have said it failed.

Side effects noted are presented in the order of frequency in this series:

ptyalism
heaviness of lower extremities
difficulty in walking
overdrowsiness
dizziness from hypotension
aching in muscles, especially arms and legs
tremulousness
weakness and fatigue
miosis, no change in vision
diarrhea
nausea
postural disturbance in 3 out of 530 cases

Parkinsonism in 3 out of 530 cases

Large dosage does not necessarily produce the most side effects, although no case of Parkinsonism was produced by less than 10 milligrams B.I.D. I reproduced Parkinsonism three times in one patient. I have kept severely disrupted patients in partial hibernation for several months after which a reduced dosage kept them from becoming noisy and assaultive.

All side effects are reversible in from one day to two weeks with lower dosage or discontinuing the medication.

Three cases had convulsions (one or two), but it is common for schizophrenics to have an occasional grand mal seizure. Shock therapy occasionally predisposes to seizures so that these convulsions could not be attributed to reserpine alone since all of these patients were schizophrenics and had had as high as 500 shock treatments.

The beneficial effects of reserpine are many. Of the assaultive, eneuritic, denudative, noisy, coprophagic patients and those showing mutism, negativism, stupor, wavy flexibility, disorientation, confusion, delusional trends, hallucinatory experiences and apparent regression, 23.3 per cent have been restored, while 35.2 per cent have been greatly improved. This makes irreversible regression doubtful.

Psychophysiologic autonomic and visceral disorders have been favorably effected, generalized psychophysiologic skin reactions of years' duration dramatically so. Asthma has been avoided. In a series of non-psychotic cases, migraine has been forestalled, pre-menstrual tension dissipated, irritability lessened. The athetoid movements of Huntington's chorea are eliminated and the irritable impulsivity stayed. The number of seizures in epileptics is reduced markedly and their ill temper and assaultiveness reduced, in many cases, to nihil.

Psychological testing in 9 per cent of these cases proved that 37.9 of the sample were restored to essentially normal; 6.2 per cent were greatly improved; 25 per cent were improved; 32 per cent were classified as "no change."

Since December 1954, I have given no shock therapy. The so-called "disturbed buildings" are quiet and orderly; only occasionally is a patient secluded for a short time until dosage is regulated. Continued use for fifteen months has not made increase in dosage necessary, once the maintenance dose has been arrived at. One back-hall patient restored after thirty-one years residence in the hospital has remained in her improved condition in spite of the fact that the reserpine was discontinued since January 1, 1955.

As controls 170 patients were placed on placebo of identical appearance and dosage, as the ataraxic. The double blind method was not used but I was the only one who knew what they were receiving. Since all of these patients on placebo have been either restored or improved on one of the tranquilizing drugs, changes in their conduct could readily be seen. Some became disturbed after only four days on placebo, others held their improvement eight or ten days, some longer. Since all of these patients' past histories are well known to us, and their reaction to shock and other therapies is a matter of record, each patient's past reaction can be used as his own control. This is much more ideal than using another patient of similar condition as a control.

Thorazine, a phenothiazine derivative with antihistaminic effect and a central nervous system depressant, is equally as efficient as the reserpine. The pre-testing for this tranquilizer was elaborate at first. We did the cephalin-flocculation test, white blood count, eosinophile count, hemoglobin, sedimentation rate, hematocrit, total non-fasting protein, blood sugar, urine, in addition to blood pressure readings and general physical and psychiatric evaluation. At first, we eliminated those patients showing liver disease or blood dyscrasia, but recently we have included them as well as poor risk arteriosclerotics, since no detrimental effects have been noted. We have had no agranulocytosis or jaundice, no Parkinsonism.

Our dosage has been from 150 to 1800 milligrams of chlorpromazine daily. Kimross-Wright has given up to 5000 milligrams daily with good results.

Side effects are seen in order of incidence:

dermatitis
photosensitivity
weakness and fatigue
aching in arms and legs
tremulousness
dizziness from hypotension
lactation
constipation
altered erotic drive
dryness of mouth

All of these are reversible with decrease or discontinuance of the chlorpromazine.

Thorazine alleviates the vomiting in pregnancy and that due to many other causes.

2-methyl-2-N-propyl1-1,3 propanediol dicarbamate, called miltown. is a tranquilizing drug with muscle relaxant properties. Its chief clinical uses are in neurotic anxiety and tension states and in the psychoses. Reserpine, thorazine and miltown alleviate hyperhidrosis. Feeding is unnecessary, paranoid ideation is dissipated, insight and interest in gainful activity is restored. Patients who have required several shock treatments weekly are now being maintained in a calm, coherent, relevant condition on these drugs. Delusions and hallucinations are dispelled. The ability to concentrate and accomplish is strengthened. The sleep charts show marked improvement as well as the behavior charts. The wards have become quiet and orderly. A patient can be aroused at any time for care, can get up and walk in the dosage given, even when the blood pressure is at shock level. Many patients who were destined to remain hospitalized for the remainder of their lives have gone home or are ready to go home as soon as relatives come for them. There is considerable difficulty in getting some relatives to claim their loved ones.

Every patient taking miltown says he feels more relaxed, sleeps better, and has a general feeling of well being. Psychosomatic complaints are dispelled. The only side effect seen is drowsiness. One patient receiving 12-400 milligram tablets B.I.D. was thought, by the psychiatric aides, to be in a critical condition. He was merely in deep sleep with some hypotension. He was able to be aroused; two cups of coffee, walking around the yard, together with 12 hours of time, ended his deep sleep which had been mistakenly called "shock." The night attendants became alarmed about another patient taking 10-400 milligram tablets B.I.D. She was said to be in "shock" but was merely sleeping soundly. When seen, she had good color, pulse was 50, of good quality, blood pressure was 70/40, she could be aroused when called, and turned over in bed under her own power. Soon her blood pressure was 100 over 60, normally it was 130 over 70.

One hundred patients are being tested psychologically before and after miltown through the generosity of Wallace Laboratories, manufacturers of miltown.

Another group, 150 patients, are taking frenquel, a gamma isomer of meratran and antagonist of cerebral stimulants, in dosage range from 80 to 400 milligrams daily, given orally or parenterally. This also is a tranquilizer and anti-hallucinogenic drug. We have had no side effects from frenquel and our experience so far indicates that the parenteral form is more effective than oral dosage, although both routes of administration have been effective in acutely disturbed cases.

Meratran, a pipradrol hydrochloride, a central motivant with subcortical activity, 2.4 to 400 milligrams daily, causes depressions to vanish and arouses those in catatonic blocking and stupor. It makes dull, apathetic patients alert and interested in activities going on about them. Mute patients respond to questioning. Confusional states of senile psychosis and arteriosclerosis clear up considerably. Thinking in normal subjects is facilitated. Meratran is being given with the tranquilizing drugs in 23 cases and in 10 cases alone. It has not interfered with sleep and is given no later than noon.

Raudixin, the whole root of Rauwolfia-serpentina, is being used in 80 cases. Its action is similar to reserpine with equally large doses. One patient had difficulty in walking, stiffness and cramping of the extremities. I believe our dosage of raudixin should be increased to 1200 milligrams daily in most cases.

CONCLUSIONS

1. 1130 patients have been on tranquilizing drugs for fifteen months or less.

2. Shock therapy has been discontinued.

3. Certain patients do not do well physically on reserpine and/or thorazine, as adjudged by their complaints and hypotension, but improve mentally and retain their improvement when the drug is discontinued. What the criteria for judging these cases in advance are, is unknown. In these cases it is necessary for the patient to recover from the medication before he recovers from the disease.

4. Patients who show ptyalism do better on thorazine, miltown and frenquel.

5. Patients who have allergic reaction with the skin as a reactor do better on reserpine, miltown or frenquel.

6. 170 patients have been again improved or restored by reserpine, thorazine, miltown and frenquel after disturbed periods on placebo.

7. Daily charts of behavior, sleep, time and amount of medicine given, physical and mental reaction, indicated the degree of improvement made.

8. Daily personal interview, bi-monthly dictaphone recordings of the patient's statements, the observations of several psychiatric aides, supervisors, relatives, and the examiner, showed the changing status of the patient.

9. Feeding, seclusion, accidents due to assaultiveness, noise, have been practically eliminated.

10. Physical improvement in general health, appetite, sleep, gain in weight, evacuation, lowering of the blood pressure in the hypertensive was made.

11. After many years' use of all approved, current, recognized treatments for mental patients, I am convinced these tranquilizing drugs are the most effective restorers of psychosomatic health.

ETIOLOGICAL DISTRIBUTION

Diagnosis	*Male*	*Female*
Schizophrenic reaction catatonic type	19.2 %	28.9 %
Schizophrenic reaction paranoid type	27.8 %	10.35%
Schizophrenic reaction hebephrenic type	16.3 %	18.6 %
Manic depressive; depressed	.57%	.69%
Manic depressive; manic	.84%	
Involutional psychosis	.57%	1.38%
Arteriosclerosis	6.16%	6.9 %
Senile psychosis	.57%	.69%
Huntington's chorea	.57%	.69%
Epilepsy	7.84%	4.8 %
Mental deficiency	9.8 %	18.6 %
Meningo encephalitis; Syphilitica	5.04%	5.5 %
Psychopathic personality	1.96%	.69%
Brain injury	.27%	.69%
Epidemic encephalitis	.84%	
Alcoholic psychosis	1.1 %	
Brain tumor	.27%	

Hospital Years	16,206
Cost per diem	$2.00, or $730 per year
Cost of hospitalization	$11,830,380
Women	57.7% of group
Men	42.1% of group
Average age of women	44.3 years
Average age of men	42.7 years
Average hospital age of women	14.1 years
Average hospital age of men	7.2 years
Duration of psychosis	1 to 54 years

Side Effects	*Thorazine*	*Reserpine*	*Miltown*	*Frenquel*	*Meratran*	*Raudixin*
Aching in arms and legs	yes	yes	no	no	no	yes
Agranulocytosis	no	no	no	no	no	no
Constipation	yes	no	no	no	no	no
Dermatitis	yes	no	no	no	no	no
Depression	yes	yes	no	no	no	no
Diarrhea	no	yes	no	no	no	no
Dizziness	yes	yes	no	no	no	no
Dryness of mouth	yes	no	no	no	no	no
Eneuresis	no	yes	no	no	no	no
Jaundice	no	no	no	no	no	no
Lactation	yes	no	no	no	no	no
Headaches or sinusitis	no	yes	no	no	no	no
Miosis	yes	yes	no	no	no	no
Nasal congestion	no	yes	no	no	no	no
Nausea and vomiting	some	yes	no	no	no	no
Nightmares	few	few	no	no	no	no
Edema of face and extremities	some	some	no	no	no	no
Parkinsonism	none	three	none	no	no	no
Postural disturbance	no	three	no	no	no	no
Photosensitivity	yes	no	no	no	no	no
Ptyalism	no	yes	no	no	no	no
Tachycardia	yes	no	no	no	no	no
Tremulousness	yes	yes	no	no	no	no
Weakness and fatigue	yes	yes	no	no	yes	yes

Beneficial in	*Frenquel*	*Meratran*	*Miltown*	*Raudixin*	*Reserpine*	*Thorazine*
Psychophysiologic autonomic and visceral disorders	?		yes	?	yes	yes
Convulsive seizures	?		yes	?	yes	yes
Huntington's chorea	?		?	?	yes	yes
Reduction of B.P.	no		yes	yes	yes	yes
Slowing heart	no		yes	yes	no	yes
Migraine	?		yes	?	yes	yes
Pre-menstrual tension	?		yes	?	yes	yes
Bronchospasm	?		?	?	yes	yes
Vomiting	?		yes	?	yes	yes
Dysmenorrhea	?		yes	yes	yes	yes
Parkinsonism	?		?	?	no	no
Tension states	?		yes	yes	yes	yes
Reducing body temperature	no		yes	yes	yes	yes
Increasing weight	yes		yes	yes	yes	yes
Insomnia	yes		yes	yes	yes	yes
Hyperhidrosis	yes		yes	yes	yes	yes
Schizophrenias — simple	yes	yes	yes	yes	yes	yes
hebephrenic	yes	yes	yes	yes	yes	yes
catatonic	yes	yes	yes	yes	yes	yes
paranoid	yes	no	yes	yes	yes	yes
Manic depressive	?	yes	yes	?	yes	yes
Arteriosclerotic psychosis	yes	yes	yes	yes	yes	yes
Senile psychosis	yes	yes	yes	yes	yes	yes
Psychosis with mental deficiency	yes		yes	yes	yes	yes
Epilepsy	?		yes	yes	yes	yes

DAILY DOSAGE

Raudixin	*Reserpine*	*Thorazine*
400 to 2000 Mg.	.25 to 30 Mg.	25 to 1800 Mg.
Frenquel	*Meratran*	*Miltown*
80 to 400 Mg.	2 to 50 Mg.	1600 to 9600 Mg.

High dosage and a long period of medication increase the beneficial results. Many patients have begun to show improvement only after ten months' medication.

ACKNOWLEDGEMENTS

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The raudixin was donated by Squibb of New Brunswick.

The Effect of Weather on the Heart and Circulation

John G. Egger, M. D.
Drew, Miss.

Climate and weather influence certain physiologic functions. Climate determines certain phases of body function and weather other. The term climate refers to average conditions for a particular area with seasonal changes as determined by meteorological observations over a period of years or decades.

The term weather is applied to the atmospheric conditions or changes prevailing from hour to hour, day to day, and week to week. Weather, in general, is the physical change in the masses of air which surround the earth—as various segments or currents of air, much like ocean currents move about the earth they undergo changes which we denote as temperature, humidity, barometric pressure, and wind direction and velocity. These changes for the most part follow certain cycles over periods of hours, days, seasons, and years.

The weight of the air or pressure at any one point on the earth will vary as the character of the air changes. This atmospheric pressure is measured with a barometer, and is approximately 14.7 pounds per square inch at sea level in a standardized atmosphere. Variances in barometric pressure are spoken of as high or low, rising or falling. Usually associated with low pressure are unsettled weather, colder temperature, and higher humidity, while clear conditions with hotter temperature and lower humidity are usually associated with high pressure areas. All factors, temperature, humidity and pressure are continuously variable. Regular readings of temperature, humidity, barometric pressure, wind direction and velocity will denote the pressure trend for any area of the country of either rising, falling or steady. The rate of change, slow or fast is important, since it is an indication of the rapid or slow approach of a high or low pressure system, and may truly be predicted hours or days in advance. Barometric pressure varies regularly over each 24 hour period, having two maximums and two minimums. This is referred to as the diurnal change. The degree of change varies with latitude and season at a given point. Also, temperature varies over each 24 hour period as does pressure, differing only in that temperature has only one maximum and one minimum.

Thus we see that weather is composed of numerous variable factors to which the heart and circulation must continuously adjust itself. The heart is directly connected to every organ and cell of the human body thru the circulatory system. The efficiency of the cardiac motive power, the vasomotor system, the nervous system, and the condition of the other organs of the body all affect the adequacy of circulation. These factors are variable, and especially the first three, are closely related to each other. Given the limits of what we consider normal, all variations from the normal must be taken as indicating disturbance of function.

While it will seem rambling, weather effects on the heart and circulation must be discussed according to each individual change, i. e., barometric pressure, temperature, humidity, wind velocity and direction.

Clinically, barometric pressure may be described as normal, high or low. At sea level normal barometric pressure is measured as about 30 inches of mercury. *Increased barometric pressure* has very little if no effect on the heart, pulse, blood pressure or circulation. *Due to diminished barometric pressure* the changes in the circulation are reflected in the heart and pulse rates, the arterial pressures, the capillary pressures, and the venous blood pressure. Some work has been done in determining indirectly, the output of the heart for each beat, and the rate of blood flow thru the lungs and other tissues.

In studies made by the medical department of the Division of Aeronautics, U. S. Army, during the war, it was found that a study of the pulse rate during exposure to low oxygen pressures gave a definite indication of the sensitiveness of the patient to low barometric tension. It was found that in a very few individuals the heart rate began to increase when the oxygen was reduced only to 17.5 per cent, which is equivalent to a barometric pressure at 5,000 feet altitude.

The increase in the heart beat was at first only from 1 to 3 beats perminute, but as the barometric pressure progressively decreased, a greater increase in the rate occurred for each successive dimunition in oxygen. An acceleration of over 40 beats per minute in the heart rate was indicative of poor cardiac reserve. Systolic and diastolic blood pressures tended to remain normal in normal subjects, but the cardiac output per minute was definitely increased during exposure to diminished barometric pressure. In subjects who reacted poorly, both the systolic and diastolic pressures fell, with the diastolic pressure falling greatly immediately before the subject became entirely inefficient.

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*Read before the 65th Semi-Annual Meeting of the Delta Medical Society at Greenwood, Miss., April 11,

In a group of 70 individuals, the following reactions were observed:

- 33%
  - 1% reacted between 7 and 8,000 feet or 15.5% oxygen
  - 12% reacted between 8 and 9,000 feet or 15.2% oxygen
  - 20% reacted between 9 and 10,000 feet or 14. 6% oxygen
- 37%
  - 14% reacted between 10 and 11,000 feet or 13.9% oxygen
  - 23% reacted between 11 and 12,000 feet or 13.4% oxygen
- 26%
  - 20% reacted between 12 and 13,000 feet or 12.9% oxygen
  - 6% reacted between 13 and 14,000 feet or 12.4% oxygen

If the change from a higher to a lower barometric pressure is made gradually, no harm will result as the escape of gases in the blood and tissues will be gradual also. If however, the pressure is too rapidly diminished the difference in tension between the tissue gases and that of the atmosphere becomes so great that the gases dissolve in the tissues of the body and suddenly liberate with resulting bubble formation. Following too rapid decompression from pressures above one atmosphere to lower pressures, liberated gas bubbles act as air emboli occluding small veins, capillaries and arterioles, and collecting in the tissues, especially fatty tissues. The resultant symptoms depend on the part of the body involved and the degree of embolism. Onset of symptoms is usually within 30 minutes after the rapid change to a much reduced pressure, but it sometimes may be delayed for hours.

The blood reacts to diminished barometric pressure by an increase in the amount of hemoglobin, to increase the oxygen capacity of the blood. The circulatory mechanism of the body is very sensitive to oxygen demand, the call for oxygen by the various cells of the body being responded to rapidly, and the flow through the tissues requiring an increased supply is itself greatly increased. The circulation plays a very important part in meeting the difficulties of supplying oxygen in the face of diminishing barometric pressure. The strain thrown upon the circulation in meeting these demands when they are severe also points to the explanation why it is that persons with cardiac defects are unable to adapt themselves satisfactorily to the conditions of life at diminished barometric pressure.

Now, let us consider the temperature changes of weather as they affect the heart and circulation. A rapid shunting of blood from the peripheral to the deep vasculature takes place during a cold front and vice versa during a warm front. Rapid changes from hot to cold weather or vice versa interfere with efficient biologic adaptation and directly affect the cardiac reserve by increasing or decreasing the heart and pulse rate.

Hot weather produces a variety of clinical syndromes, and in general produces a lowering of basal metabolism and increased blood volume, a persistently increased pulse rate, diminished appetite and weight loss.

The first response to heat is dilatation of the vascular bed in the skin bringing a greater fraction of the total volume of blood to the surface for cooling. The venous return to the heart is diminished as a result of the vasodilatation and there is a drop in blood pressure. Compensation is achieved by an increase in the heart rate, which if prolonged results in increase of the total volume of blood in circulation.

In heat experiments with humans, Bazett demonstrated blood volume increases of 6 per cent in 1 day, 10 per cent in two days and 25 per cent in 5 days. The extreme differences of volume in winter and summer of patients living in Philadelphia was found to vary from 30 per cent to 40 per cent.

Intensification or continuation of exposure to heat may nullify the advantage of an increased blood volume, vasodilatation may become so great that the venous return to the heart is diminished and adequate blood pressure and blood supply to the heart and viscera continue to be dependent on a persistently increased heart rate. Exercise or increased humidity at this stage may result in cerebral anoxia and reflex slowing of the heart, producing the syndrome known as heat exhaustion or heat collapse. This condition may require several weeks for its development, but under conditions of strenuous work and extreme heat exposure may occur in less than an hour before adequate time has elapsed to permit an increased blood volume.

The evaporation of sweat assumes an increasingly important role in maintenance of a constant body temperature as the temperature of the surrounding air approaches that of the body. When the temperature of the air is warmer than the body, evaporation of sweat is indispensable to the continuation of life. The efficiency of this cooling mechanism is directly related to the dryness of the air and the vigor of its motion. Atmospheres of high humidity are insufferable at temperatures that can be borne with comfort when the humidity is low.

Humidity is used to describe water vapor or moisture present in the atmosphere, dew-mist-fog, when 100 per cent occurs on the earth surface, and as clouds in the air. The total amount of water vapor that the air can hold before being precipitated is dependent on the barometric pressure and temperature. The rate of evaporation is governed by the temperature, humidity, barometric pressure, wind velocity. The drier the air, the more rapid the evaporation.

The cold front with its attendant drop in temperature, decreased humidity and increased barometric pressure first results in hyperactivity of the sympathetic nervous system producing peripheral vasoconstriction, reduction in capillary permeability, elevation of blood pressure, increased venous pressure on the heart, dehydration of tissues, reduction of blood carbon dioxide and a shift of the blood pH toward alkalinity. Following this sympatheticotonic phase, vasospasm is succeeded by a gradual compensatory vasodilatation in an effort to meet the increased oxygen need, the blood pressure drops with an increase in permeability of membrane and body tissues become more acid and hydrated. Exposure to even moderate chilling causes an elevation of heart and pulse rate. Apart from spasmodic rises in the pulse rate associated with shivering, the pulse rate in man falls with the fall of body temperature. Continuous exposure to cold has been found to be a particularly effective type of stress in the experimental production of persistent hypertension, nephrosclerosis, cardiac hypertrophy, and cardiovascular hyalinosis.

Clinically, increased or high barometric pressure is most commonly illustrated by Caisson disease, also known as decompression sickness, the bends, compressed air illness, altitude bends, mountain sickness, or aeroembolism. This is defined as a clinical disorder caused by too rapid change from a higher to a lower atmospheric pressure with resultant gaseous desaturation of the body tissues and formation therein of gas bubbles. Symptoms may be summed up as follows: itching of the skin, slight or severe pains in bones and joints, dyspnea, increased heart output with rapid pulse, muscular pains, often cerebral symptoms, hebetude, loss of consciousness, deafness, blindness, vomiting, vertigo, nystagmus, sharp abdominal pains, nausea, pulmonary edema, apoplectiform seizures, monoplegia or diplegia, and shock and collapse may occur in severe cases with sudden death.

Acute mountain sickness or aeroembolism is that special form of decompression sickness which occurs following sudden change to a lower atmospheric pressure as in rapid ascent to high altitudes. The symptoms of aeroembolism due to decompression to lower than normal atmospheric pressure, as in high altitude flying, differ somewhat from those encountered following exposure to increased atmospheric pressure. For unknown reasons the spinal cord escapes injury. Muscle and joint pains are frequently present, whereas girdle pains are seldom noted. Respiratory symptoms (choking), varying from substernal distress and paroxysmal cough to asphyxia, and subcutaneous manifestations (tingling, formication, numbness, pruritis, rashes, temperature sensations and aeroemphysema) are common complaints as are visual disturbances (lacrimation, burning, diplopia, scotomas) aero-otitis media, sinus pain, toothache, and abdominal distress due to expansion of intestinal gases.

The chronic or slow form of mountain sickness is the more usual type, and is manifested by dizzy sensations or giddiness. Some hours later languor and depression appear, with fatigue, sleeplessness, headache and loss of appetite which may develop into nausea and vomiting, cyanosis of various degrees, dyspnea, rapid pulse and heart rate.

Clinical aspects of increased temperature are: 1) heat exhaustion, 2) heat cramps, and 3) heat hyperpyrexia.

Heat exhaustion is characterized by cardiovascular collapse with reflex slowing of the heart which soon becomes increased associated with subnormal temperature and diminished blood pressure. There are no characteristic blood changes. Workers with significant heart disease are apt to be susceptible to heat exhaustion. Severe heat exhaustion does not precipitate an attack of decompensation nor does it leave a normal heart with permanent changes.

Heat cramps result from two known physical factors, first reduced extracellular fluid concentration of sodium chloride and hard physical work.

Heat hyperpyrexia or heat stroke results in marked elevation of the body temperature as a result of the exhaustion or fatigue phenomena of the heat center in the hypothalmus. Cases most frequently occur among elderly inactive persons during protracted spells of hot weather.

Clinical effects of cold are: 1) frostbite, chilblain, or immersion foot characterized by destruction of superficial tissues resulting in secondary structural and functional disturbances of the smaller blood vessels. 2) freezing or hypothermia, which results in thrombosis of blood vessels, gangrene and loss or death of tissues if extended to too long exposure.

Additional factors which are not normally considered in weather are the variances in the atmospheric gases. Smog and air pollution are becoming major factors particularly in our major cities. Some of the air masses affecting most temperate climates are: continental, maritime, polar, and superior, but will not be discussed in this paper. However, from the nature of its origin it is certainly reasonable to expect that superior air masses would have a very marked below normal oxygen content and its influence would be felt by the heart.

In actual practice about 0.1 inch change in barometric pressure is equivalent to 100 feet rise or fall in altitude. Barometric variations up to 1000 feet are not uncommon, with variations many times greater having been recorded. Ordinarily, it has been proved that patients with poor cardiac reserve do not tolerate barometric pressure readings equivalent to more than 4000 feet above sea level. It is easily seen how a patient might be at an elevation some thousand or so feet above sea level and be subjected to conditions that would be difficult for his system to tolerate by the advent of a rapid change in the weather conditions. If this change were sudden, then all symptoms of aeroembolism or acute mountain sickness might appear. On the other hand, if this change were slow—and even slow enough so as not to be readily recognized by the patient—it might be great enough to have the same effect.

Apparently the barometric pressure change is the most important single factor to consider which might affect the heart and circulation, but when combined with the other adverse weather factors, it is easy to see that the heart might not be able to compensate for these changes and the patient might well develop an acute vascular episode.

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DISCUSSION

Dr. Virginia Tolbert (Ruleville)—It is a privilege to add a few comments to Dr. Egger's stimulating, thought-provoking discussion.

Heat prostration or exhaustion is probably the most common illness seen in this locality attributable directly to the weather. It is evidenced by weakness, dizziness, stupor, pallor, acceleration of pulse rate and respiration with lowering of blood pressure. Usually the apparent onset is sudden but may last for several days with only headache, anorexia and weakness.

In heat stroke or sunstroke, the heat regulating mechanism is seemingly overwhelmed. Usually, heat exhaustion and heat stroke may be differentiated but there is no clear line of demarcation between the conditions. Heat stroke may occur suddenly and death may be almost instantaneous. There is loss of consciousness, extreme elevation of temperature and in early cases the pulse is full and rapid. Later the pulse is irregular, rapid and feeble, with shallow breathing. Metz reported signs of a damaged myocardium in the EKG immediately after heat stroke. Wilson describes an extensive hemorrhage under the endocardium of the left ventricle in four fatal cases and believes this is probably the actual cause of death.

Heat cramps are commonly seen in this locality, attributed to dehydration and the loss of blood chlorides. It usually occurs in those taking large quantities of water immediately after working in intense heat with loss of salt through profuse perspiration.

Treatment of heat exhaustion usually requires only rest in a cool place. Heat stroke requires prompt treatment with cool sprays, constant massage, fanning and probably intravenous fluids. Heat cramps may be treated with saline fluids, rest and sedatives.

Another common condition seen by all of us which sometimes is influenced by weather is angina pectoris. Attacks may be precipitated by walking against a cold wind or in some patients, by exposure to cold alone. All angina patients should be warned against sudden exposure to severe cold. They should restrict all outdoor activities even more than usual during periods of extreme low temperatures.

Some authorities feel that the etiological factors for angina pectoris apply more or less to coronary thrombosis and consider sudden exposure to cold a possible precipitant in acute myocardial infarction.

C. A. Mills states that energetic residents of temperate regions die from degenerative diseases. The clearest climatic relationships are found for diseases of metabolic overstimulation or breakdown. In the temperate, stimulating regions there is growing evidence of stress and failure in the vascular system, which bears the most load as tissue combustion increases. Mills states that advance of sudden heart failure toward even earlier ages in American men of middle temperate latitudes is presenting the medical profession with an acute health problem. Though statistics are confused, it seems that diseases of the heart and vascular system are a far more serious health problem in temperate regions than in the tropics. This is explained by the theory that circulatory failure is dependent on stress and the primary work load of a higher tissue combustion rate falls on the circulatory system as oxygen carrier.

In Cincinnati over a 20-year period there was an inverse relationship of non-infectious heart failure to mean monthly temperature levels throughout the year. These heart failures were four times more frequent in winter than in summer, and showed a variation with severity of winter cold. During some warm Cincinnati winters admission rates were only one-fourth as high as during normally cold winters. Vascular sclerosis seems to appear in the earlier decades of life only in the temperate areas.

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CARDIOVASCULAR SEMINAR

The annual Cardiovascular Seminar sponsored by the Mississippi Heart Association for state physicians will be held at the Universty Medical Center in Jackson on June 13, 14, and 15.

Five outstanding guest lecturers will participate in the three-day program which promises to be of the same high caliber as the two previous teaching seminars held by the heart association.

The guest lecturers are to be: Dr. Rachel Ash, University of Pennsylvania School of Medicine; Dr. Lewis Dexter, Harvard University School of Medicine; Dr. Franklin D. Johnston, University of Michigan School of Medicine; Dr. Michael DeBakey, Baylor School of Medicine and Dr. C. Walton Lillehei, University of Minnesota School of Medicine.

Case reports will be given by Dr. John Wafer of Shreveport, La., Dr. Robert Sloan of the University Medical Center and Dr. Wesley Lake of Gulfport. Arrangements are being made for the seminar participants to join with the speakers at informal luncheons in the Medical Center.

All physicians in the state are invited to attend the heart association short course which is conducted as part of the association professional educators program. Dr. Joseph P. Melvin, Jr., of Jackson is chairman of the professional education committee which is making arrangements for the June meeting.

Dr. Melvin points out that the heart association exists to combat heart disease through research and education. One of the most powerful weapons is this annual seminar which makes up-to-date information in the field of cardiology available to Mississippi physicians, he says.

The Mississippi Heart Association will hold its annual meeting on Wednesday, June 13, in conjunction with the seminar. Dr. Arthur Guyton, state president, has announced that it will be a dinner meeting at 7:00 p. m. in the Robert E. Lee Hotel. Business will include election of officers. Dr. David J. VanLandingham of Jackson, president-elect, will be elevated to the presidency at this time.

The two previous seminars held on the University campus at Oxford have been well received and attended. Heart association officials hope that the central location for the 1956 meeting will encourage even more physicians to participate.

ANOTHER TYRONZA SPECIAL

One of the big and outstanding meetings of the year will be another L. H. McDaniel promotion at Tyronza, Ark., on May 24. "Our American Faith" is the slogan. It is a big effort in the field of public relations and on the program will be found outstanding men in the profession and in national affairs. Hundreds of people will be there from across the nation. Paul Flowers, *Commercial Appeal* columnist, is chairman of publicity. It will be a great day for any one who attends.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

HARVEY F. GARRISON, Sr., M.D. .... Pediatrics
JOSEPH P. MELVIN, Jr., M.D. .... Cardiology

CARDIOLOGY

Continous investigation of digitalis, alkaloid fractions and derivatives, in the hope of utilizing variations and properties which might result in greater efficacy in selected cases, is being vigorously promoted in many of the larger medical centers of the country. All practicing physicians desire a therapeutically perfect digitalis preparation, and yet, at the same time, most realize that the particular problem presented by the patient determines the choice of the digitalis preparation. The physician must consider the necessity for rapid action, preferable route of administration, potency and standardization of the digitalis product, therapeutic range, the possible toxic effects and the rate of dissipation.

Digitoxin (Purodigin, Crystodigin, etc.) has become a widely used routine preparation for digitalization because of its rapid and nearly complete absorption in the gastro-intestinal tract and because it may be used parenterally. However, due to its marked cumulative effects and long period of dissipation, it has been incriminated in many cases of digitalis intoxication during the last two or three years, not only because the originally proposed safe standard dose for digitalis was in error, but because dangerous cardiac arrhythmias frequently present before the more benign and easily recognized gastro-intestinal symptoms. In an attempt to solve the problem, acetyl-digitoxin was derived in 1952 and the review by Dr. George Herrmann's group reveals the following pertinent facts: 1) Acetyl-digitoxin was used in therapy of 166 patients in congestive heart failure and was demostrated to be well tolerated and effective. 2) The initial digitalizing dose can be given as a single dose or over a period of several days, and varies from 1.6 to 2 mg. in an adult, averaging 1.84 mg. In the single dose method (giving the entire oral dose at once) 1.6 to 1.8 mg. is well tolerated, as a rule. 3) Maintenance was also effective and most patients could be maintained on from between .1 to .2 mg. daily. 4) The excretion is slow but appears to be more rapid than that of digitoxin. Toxic effects disappear generally in one to three days, a much shorter period than that found in digitoxin intoxication, but the total elimination of drug effects from patients in atriofibrillation required thirteen to seventeen days. 5) Toxic effects were deliberately attained in some patients, and consisted of the more benign gastro-intestinal symptoms in the majority of patients. Only infrequently did dangerous arrhythmias present as a sign of toxicity and no fatalities could be ascribed to the drug. 6) The therapeutic range in terms of clearing up congestive failure, slowing of auricular fibrillation and diuresis was similar to that of the other glycosides. In summary, it appears that acetyl-digitoxin will attain merit as a long-acting glycoside which is well tolerated even in single digitalizing dosage by mouth in which it is effective therapeutically. It has the advantage over digitoxin of more rapid dissipation and the toxic effects are usually gastro-intestinal symptoms instead of dangerous arrhythmias. Addendum: Acetyl-digitoxin is marketed as Acylanid, a Sandoz product.

PEDIATRICS

Infantile Hypertrophic Pyloric Stenosis in Parent and Child. T. McKeown and B. MacMahon. Arch. Dis. Childhood 30:497-500 (Dec.) 1955, London, England.

One hundred and twelve living patients in whom the diagnosis of pyloric stenosis was confirmed by operation at the Birmingham Children's Hospital in the period 1920-1934 were traced in 1955. They had 29 children, none of whom had pyloric stenosis. By combining these results with those from two reported series, the incidence of the disease in children of affected parents is estimated as 6.9 per cent. Ten cases of pyloric stenosis in parent and child were obtained from current records of children treated at the Birmingham Children's Hospital. By inspection of records of 2,579 patients treated in hospitals in Liverpool, Manchester, Newcastle-on-Tyne, and Sheffield, two more examples of the disease in parent and child were found. In eight of the 12 families, the affected parent was the mother. When the results are combined with those of two published series, there are 33 families, in 17 of which the mother was affected. Since pyloric stenosis is much more common in males than in females it is concluded that the risk of the disease is considerably greater (at least four times) in children of affected mothers than in children of affected fathers. It is also shown that the risk of pyloric stenosis is not spread uniformly among all offspring of parents who have had the disease, but is highly localized in certain families. Among children in families in which a parent and one child have been affected, the proportion exhibiting the disease is approximately 40 per cent. The authors feel that these results are inconsistent with a simple genetic hypothesis and are more plausibly attributed to the influence of the early postnatal environment.

COMMENT: The authors have had quite an unusual experience in pyloric stenosis in both parents and children. It so happens that we were one of the first pediatricians in the state of Mississippi to treat or have operated for pyloric stenosis in the city of Jackson. We have had quite a few operated but have never had the experience in regard to parent and child history such as indicated in this article. We remember very distinctly one particular family where the mother had four children. The firstborn was a girl and she had pyloric stenosis. The next two children were boys, neither one having it. The last and fourth child was a girl and she had it. I had both of them operated on successfully and they are grown girls now. One particular point I wish to emphasize is to be successful in these operations, it is absolutely necessary for the surgeon to be very careful to cut through all fibers down to, but not through, the mucosa. This is one of the secrets to doing a successful operation for this condition.

PSYCHOLOGICAL TRAUMA TO CHILDREN IN HOSPITAL. Sheffield, England (Children's Hospital). 5. Illingworth, R. S., and Holt, K. s.: Lancet 269:-1257 (December 17), 1955.

"It is important to do everything possible to reduce psychological trauma to children in hospital," emphasize Illingworth and Holt in a report on 281 patients aged 1-14 years. Their study dealt with the behavior of children during their hospital stay, the cost of visits by relatives, and the reaction of children to the departure of their visitors. They recommend that before admission the child should, if possible, be given some idea of the experiences he will have.

It is good for the mother with a small child to be admitted with the child and share a bedroom in the hospital. This is particularly important for the young child who is going to be seriously disturbed by separation at the very time that he most needs her. It also helps the mother avoid the trauma of separation and gives her the satisfaction of taking an active part in the child's recovery. The next best thing is for her to visit each day. The young child whose mother does not visit him becomes gradually more convinced that she has deserted him and perhaps that he is being punished; thus the mother-child relationship, the strongest tie in his young life, is prematurely broken. On departure of visitors the older children showed emotional disturbance mainly by subdued behavior and facial expression; such disturbance grew much less frequent after the first few days. The young children, however, cried, and their disturbances persisted or became even more striking with subsequent visits. In spite of this, it is considered far better that the child see his mother each day. Daily visiting also gives the staff much more contact with the parents and contributes much to the staff's understanding of the children.

It is the doctor's responsibility also that the emotional needs of the children are attended to, as far as possible, that children are never kept in bed unnecessarily and that the duration of their stay is limited to an absolute minimum. Children should be occupied; and the doctor should see that there is a supply of educational toys in every ward and that they are issued. They are of much greater value than mechanical toys since they occupy the child for longer periods and he enjoys them much more. Finally, when the child is about to be discharged, the doctor can do much to ensure that the parents' attitude will be a healthy one, that they will not spoil the child, and that they will have an understanding of problems which may arise as a result of his experiences. Though separation from the mother is a disturbing event, there is no evidence that the child suffers anything but a temporary disturbance by his hospital experience.

COMMENT: This article brings to mind a good many cases this writer has had where the mother had been denied the privilege of remaining with her child while in the hospital, and in some instances where the child was seriously ill, by some enthusiastic, energetic "newcomer" such as some head nurse or administrator of a hospital demanding that mothers not be permitted to remain with their child. I have seen many cases in which the presence of a mother was worth more than a doctor. If more of our hospitals had a full helping of humanity with an acutely sympathetic feeling for both the child and the mother, the reward would be two-fold: good public relations and better pediatric care.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

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MEDICAL EDUCATION

The United States now has 81 medical schools. The University of Tennessee in Memphis is said to be the largest in the nation. It has a department for teaching general practitioners, giving them some of the special training they need. It seems that we are on the way with the same thing in our Mississippi Medical School. In equipment and location our school at Jackson ranks very high. We think it will soon prove to be one of the best in training from all points of excellence. To do the work that it can and should do will take a lot of money. Every doctor and every citizen should be squarely behind it. The rapid increase in population calls for more doctors and our people are using more medical service and using it more profitably than ever before.

Both corporations and individuals are making contributions to medical education. In 1955, fifteen hundred business firms contributed nearly $1,700,000. Our schools are requiring $10,000,000 annually more than they did. Doctors are beginning to make contributions to medical education. We not only need more doctors as the population increases and as people utilize medical science more and more, but we need many more men in the field of science and scientific research. With the progress medical science has made within the last fifty years our schools richly deserve liberal aid from every source available. Corporations are seeing the value of keeping up liberal research in the field of medicine and in other related fields. The same trend is seen in the field of Christian education which is indispensable to the perpetuation of our way of life.

Gifts to medical education may be designated to an individual school. The moneyed men and doctors of the state who can at all would render a fine service to contribute to our medical school now.

RECORD-BREAKER EXPECTED

This session will no doubt be a record breaker for our State Medical Association in attendance and in other ways. Jackson is a fine convention city. The new central office of the Association is being dedicated and our four-year medical school welcomes doctors to look in on its progress. The scientific program promises to be excellent.

ARKANSAS HAS FINE MEETING

We were happy to represent the MSMA at the annual Arkansas Medical meeting at Little Rock on April 23. A fine scientific session was in progress in addition to other splendid features. Dr. L. H. McDaniel of Tyronza presided as president, with Dr. Fount Richardson of Fayetteville coming up for the presidency. Dr. McDaniel is apast councilor of the Southern Medical Association and Dr. Richardson is serving as councilor now. Our fine friend, Louis K. Hundley, a past governor of Rotary, was presiding as chairman of the council. Dr. Duel Brown of Little Rock is speaker of the house of delegates. Mrs. Mason G. Lawson of Little Rock addressed the house of delegates as president of the Woman's Auxiliary to the American Medical Association.

Little Rock is the home of our good friends Drs. Hoyt Allen and H. Fay Jones. We were glad to have a cordial handshake from Dr. H. King Wade of Hot Springs, a native of Mississippi. We saw many other good friends whom we have known at the Mid-South for many years.

The Academy of General Practice is strong in Arkansas and a two-hour symposium conducted by the leaders of this organization was informative and worthwhile. Our good friend and a past governor of Rotary, Dr. Ben N. Saltzman, Mountain Home, presided over this section.

The American Medical Association was well represented from the Washington office, bringing emphasis on medical legislation.

Dr. R. L. Sanders of Memphis, immediate past-president of the Southern, was on the program.

Mr. C. P. Loranz was representing the Southern Medical. Arkansas has a fine medical school located at Little Rock, which has been a strengthening asset to the profession in our sister state.

PSYCHOLOGICAL THERAPY

Dr. Harvey F. Garrison, Sr.'s abstract on psychological trauma to children is worthy of extra consideration. The question centers around permitting the mother to stay with her small child in the hospital. Some think it is detrimental to the sick child to separate it from its mother. Some mothers may even be disturbed. There has been the question for years of whether the baby should remain in the room with the mother after it is born. Most hospitals keep the babies in the nursery. Our hospital at Booneville keeps the baby in the room with the mother unless it is sick. It is our experience that psychological adjustment is more rapid when the baby remains with the mother; on the other hand when the mother stays in the room with the sick child recovery is facilitated. We commend Dr. Garrison for his valuable comments on pediatric literature.

SALAAM TO OUR PRESIDENT

A generous expression of appreciation goes to our state president, Lamar Bailey, for his fine work of the past year. His job has been no small one. He has really put himself to the task and has done it well. Dr. H. C. Ricks, incoming president, will be very active during the coming year, with experience that fits him well for able leadership.

JOINS INTERPRETING MEDICAL LITERATURE STAFF

We are happy to present as a staff contributor to our section on Interpreting Medical Literature Dr. Joseph P. Melvin, whose reviews will be chiefly on cardiology. We are grateful to Dr. Melvin for this undertaking and we welcome his talent and experience.

Deaths from heart disease head the list. We can not underestimate the need for study and research on the human heart. Terse presentations by a man like Dr. Melvin we are sure will be very valuable. In your practice if you have an unusual or interesting case Dr. Melvin would no doubt welcome it for comment. We hope to have a full staff for reviews of the literature in other fields soon.

MEDICAL SAGE

Now it seems that Dr. Dudley Jones of Jackson, Mississippi, is the oldest living past councilor of the Southern Medical Association from the standpoint of service. Dr. Jones has been in active practice now for many more than fifty years. He is a prominent member of our Fifty-Year Club. He has rendered fine service as a practitioner in general medicine, and was for many years one of the most active men our state had in organized medicine. He has served as councilor and president of the State Association, as well as on the council of the Southern. Dr. Jones has always been well versed in organized medicine and well balanced in medical ethics.

UNIVERSITY NEWS

Dr. Elmer E. Paulter has been named associate professor of pathology at the University of Mississippi Medical Center in Jackson, effective August 1. Dr. Paulter is currently chief of laboratory service in the U. S. Army Hospital at Fort Campbell, Kentucky. He was previously assistant professor of pathology at the University of Miami School of Medicine.

Dr. Michael Newton, professor and chairman of obstetrics and gynecology at the University Medical Center, spoke to the Alabama Ob-Gyn Society and to the Alabama State Medical Association in April.

COMPLETES 37 YEARS AS SUPT.-SURGEON IN MISSISSIPPI HOPITALS

Dr. V. B. Philpot was superintendent and surgeon-in-charge of the Houston (Miss.) Hospital (90 per cent of which he owned) for 27 years, and after selling his interest there accepted a ten-year contract with the new North Mississippi Hospital at Holly Springs which opened February, 1946. Both the above-mentioned institutions acquired high rating under his supervision.

During the many years of service to humanity there are in all probability few in his profession who have done more general surgery on our people, and being a pioneer in and a student of hospital problems, Dr. Philpot has few equals in the management of the community hospital.

Dr. Philpot, a fellow of the American College of Surgeons, has confined his practice throughout his professional life entirely to surgery. He did postgraduate work at Tulane, Columbia University, New York Polyclinic, Harvard, Cook County Hospital, and Rochester, Minn.

He has always been interested in organized medicine and hospital work, has served as president of his district medical society, president of the Mississippi State Hospital Association, president of the Mid-South Postgraduate Medical Assembly, three times chairman of the Section on Surgery of the Mississippi State Medical Association, president of the Mississippi Chapter of the American College of Surgeons and has contributed many papers to various medical and surgical organizations and publications.

The following is a partial list of published papers which Dr. Philpot has presented before medical, surgical, and hospital groups:

Early Surgical Interference in Appendicitis, Conservative Surgery of the Pelvic Female Organs, Pelvic Neoplasms, The Acute Abdomen, Treatment of General Peritonitis, Treatment of Gallbladder Diseases, Preoperative Treatments, Treatment of Wounds, Fractures and Their Treatment in Small Hospitals, Classification of Goiter and Treatments, President's Address, Mississippi State Hospital Association, *President's Address,* Mid-South Medical Assembly, *Chairman's Address,* Section on Surgery, Mississippi State Medical Association, *The Community Hospital, Lesions of Cervix and Their Treatments, Fractures of Femur,* report of 50 cases (nailing fractures of neck, 25), and several case reports.

Dr. Philpot has made a number of moving pictures, in color, of the operations performed by him, and which have been shown at a number of medical conventions, including the Mississippi State Medical Association, on several occasions, the Southern Medical Association at Richmond, Virginia, and the New Orleans Postgraduate Assembly, New Orleans.

Dr. Philpot's active "tour of duty" in the hospital at Holly Springs ended January 1, 1956, but his board employed him as a consultant for a six-month period, during which time he is having a chance to rest deciding whether to get back into professional work or take it easy afterwards.

ANNOUNCEMENTS

Timberlawn Sanitarium for nervous and mental disease announces the opening of its modern brick, year-round air-conditioned buildings, the women's convalescent building in March, 1953, and the men's building with occupational and recreational therapy departments in March, 1955. P. O. Box 1769, Dallas, Texas.

Dr. Charles L. Neill and Dr. Walter R. Neill announce the removal of their offices to Suite 214, Medical Arts Building, 1151 North State Street, Jackson, Miss. Practice limited to neurological surgery.

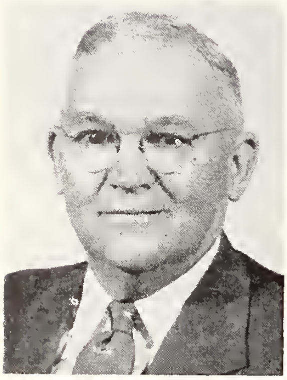
James W. Hendrick, M. D., Diplomate American Board of Surgery, announces opening of his office for treatment of malignant diseases and practice of general surgery, 602 First National Bank Building, Tuscaloosa, Ala.

Carl D. Brannan, M. D., announces the removal of his office from 710 N. State Street to 719 Carlisle Street, Jackson 2, Mississippi, for the practice of general surgery.

Applications for certification 'American Board of Obstetrics and Gynecology' for the 1957 Part I Examinations are now being accepted. Candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is October 1, 1956.

Current Bulletins outlining present requirements may be obtained by writing to the Secretary's of- may be obtained by writing Dr. Robt. L. Faulkner, Secretary, 2105 Adelbert Road, Cleveland, Ohio.

THACK GRANT HUGHES



Thack Grant Hughes, son of Joseph Rasberry and Florence Orlean Hughes, was born August 24, 1880, near Anding, Mississippi.

His early education was received in the public schools of El Dorado, and Malvern, Arkansas; the elementary department of Searcy College, and in the public schools at Greenwood, Mississippi. He was graduated from Mississippi State College, Starkville, in June, 1902, receiving a B. S. degree in mechanical engineering. On June 4, 1905, he was graduated from Kentucky University with an M. D. degree.

Doctor Hughes began the practice of medicine at Philipp and remained there until January, 1906, when he moved to Robinsonville, where he lived until he moved to Clarksdale on July 9, 1908—where he has practiced medicine since that time, a period of more than 47 years.

In 1916 and again in 1926, he studied general surgery and gynecology at the Polyclinic Postgraduate School and also did postgraduate study in Chicago and in Baltimore at Johns Hopkins.

Doctor Hughes served for about ten years as city health officer. He also had built and operated a hospital for Negro patients in Clarksdale. At the present time, he is president of the staff, Coahoma County Hospital, Clarksdale, and has served in this capacity since the hospital opened.

He was one of the founders and also served as president of the Coahoma County Medical Club. He served as lieutenant-colonel in the National Guard and served as medical examiner and adviser for local boards in World War II. He is a member (and deacon) of Clarksdale Baptist Church, a 32nd degree Mason, a Shriner and past president of the Lions and Rotary clubs. For thirty years, Doctor Hughes was active in Boy Scout work, serving as chairman of the Court of Honor.

On May 12, 1954, Doctor Hughes was honored by the citizens of Clarksdale and Coahoma County with a "Dr. Huges Day" which included a parade and banquet as part of the observance.

On June 4, 1955, Doctor Hughes was honored with lifetime membership in the Fifty-Year Club. Dr. W. H. Anderson presented the certificate and pin.

Doctor Hughes continues to serve his fellowman faithfully and well in the practice of medicine at Clarksdale.

DEATHS

DR. J. M. SMITH

Services for Dr. John M. Smith, prominent Magnolia physician who died February 23 at Beacham Memorial Hospital, were held from the First Baptist Church of Magnolia.

A 1907 graduate of the Tulane Medical School, he had practiced medicine in Magnolia for 47 years. He was a veteran of World War I, a Mason, a Shriner, a member of the Pike County Medical Society, and a deacon in the Baptist Church.

Dr. Smith, who was 69, is survived by his wife, Mrs. Irma Smith; one son, Dr. John Lamar Smith of Little Rock, Ark.; two sisters, Mrs. Kirby Wooton of Clinton and Mrs. F. F. Parsons of Columbus.

DR. R. M. WEBB

Dr. Robert Marvin Webb, a physician of Kilmichael for the past nine years, died February 25 at his home after a heart attack. He was 69.

Dr. Webb was born in Winston County, Miss., and was graduated from Mississippi Medical College at Meridian in 1912. He practiced in central Mississippi before coming to Kilmichael. He was a veteran of World War I, a member of the American Legion, was a Methodist and a Mason.

He leaves his wife, Mrs. Ruby Garnett Webb; three sons, Garnett Webb and Thomas Webb, both of Jackson, and Wilford Webb of Greenwood, Miss.; two daughters, Mrs. Nancy Webb Watson of Strong, Miss., and Miss Virginia Webb of Kilmichael; three brothers, Victor Webb of New Orleans, Harold Webb and Foster Webb, both of Noxapater, Miss., two sisters, Mrs. Hilda Woodruff and Mrs. Selma Boswell, both of Noxapater.

DR. ROBERT M. SEAWRIGHT

Dr. Robert M. Seawright, 45, prominent Bolton physician, died suddenly February 8. He was stricken at his home and rushed to the hospital in Jackson.

A native of Ackerman, he was a son of the late Mallie Hunt Seawright and James Lemuel Seawright. He attended Millsaps College and was graduated from the medical school at Emory University.

Dr. Seawright practiced medicine at Flora for three years and had been practicing in Bolton since 1940. He was a member of Gov. J. P. Coleman's "colonel" staff.

Dr. Seawright was a member of the Central Medical Society, the American Medical Association, the Mississippi Medical Association, and was secretary-treasurer of the American Academy of General Practice, Mississippi chapter.

He was president of the Bolton Rotary club, past president of the board of trustees of the Bolton schools, a member of Kappa Alpha fraternity, and a member of the Bolton Methodist church.

Survivors include his widow, Mrs. Margaret Seawright, daughter of Dr. and Mrs. Alsobrook, Bolton; one son, Robert Daniel Seawright, Bolton; his mother, Mrs. J. L. Seawright, Sr., Meridian; a brother. J. L. Seawright, Jr., Greenwood, and one sister, Mrs. R. H. Burney of West Point.

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Mid-South Postgraduate Medical Assembly

W. H. Anderson, M.D., Editor-in-Chief
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